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**CONCEPTUAL PLAN for WATER RESOURCES PROJECTS**

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By  
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**MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION**

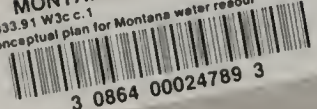
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CONCEPTUAL PLAN  
FOR  
MONTANA WATER RESOURCES PROJECTS

APPROVED BY THE MONTANA BOARD OF  
NATURAL RESOURCES AND CONSERVATION

Water Resources Division  
Montana Department of Natural Resources and Conservation  
32 South Ewing  
Helena, Montana 59601

March 1978

MAR 30 1983

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## CHAPTER I

### INTRODUCTION

In 1934, the State of Montana initiated a major, formal program of construction and operation of state-owned water development projects intended primarily to provide irrigation water for agriculture. This program was established by legislation passed during a special session of the Montana Legislature in 1933 and subsequently amended and strengthened by the Legislature in 1935. According to a 1961 report prepared by Robert J. Kelly (long-time Administrative Officer of the State Water Conservation Board) entitled State Water Conservation Board: Summary of Activities from Inception January 22, 1935 to June 30, 1960, a summary of the enabling legislation for this state water program provided:

The Act creating the Board declared as its purpose to encourage public works and to reduce unemployment and thereby assist in the national recovery and promote the public welfare. It also declared that the public interest, welfare, convenience and necessity required the construction of a system of works for the conservation, development, storage, distribution and utilization of water. It declared that the Board was performing a governmental function in carrying out the provisions of the act and that water conservation was a state purpose. It specified Board was a body corporate and politic with perpetual existence and an agency of the State of Montana. Broad powers were given to the Board allowing it to cooperate and enter into agreements with all federal and state agencies, investigate, survey, construct, operate and maintain, and to finance the construction of projects either through funds appropriated to it, by grants or by the sale of water conservation revenue bonds. It established various funds that were necessary in the servicing of the bond issues as the funds required to carry on the business of the Board.

The Board was given authority to file on all unappropriated water of the state and the right of eminent domain to acquire lands needed for projects. Several clauses of the act broaden the powers of the Board to include all types of development of natural resources.

The State Water Conservation Board vigorously established and pursued the program envisioned by the Legislature. There is no question that the program was successful in its construction of significant water works, minimal investment cost, increased direct and indirect employment resulting from the project construction, improved and expanded use of state water resources, and immense economic assistance to agriculture within the state. Some feeling for the amount of effort exerted and for the success of the State Water Conservation Board may be gained from a review of the Appendix, the first thirteen pages of the Kelly report.

In all, 181 water projects of a variety of types and sizes had been constructed by the late 1950's. Included were 141 dams and reservoirs with a total storage capacity of over 438,000 acre-feet. Associated with the dams and reservoirs were numerous diversion structures and 815 miles of canals with the capacity to carry some 260,000 acre-feet of water. Total acreage served by the state projects was in excess of 400,000 acres.

In the late 1950's, the State of Montana apparently lost its momentum in development of its own water resources under direct state sponsorship. This change in emphasis from the vigorous and exciting construction periods of the 1930's and 1940's is suggested in the Kelly report on page 12, where it is stated, "Primarily the Board is a construction agency but with construction activities slowed by limited funds and high costs, the Board has had an opportunity to give more attention to the problems of management of its projects." On page 13, the Kelly report states, "In continuing the construction of the projects the Board has faced a serious problem because rising construction costs have outdistanced the increase in farm income." Not only was there no new construction of significance after release of the Kelly report, there was a gradual deterioration of the entire state water development system due to a number of causes including advancing age, poor initial construction practices for some projects, the inability of water users associations to finance major repairs for their projects, increasing costs per employee of state government, and decreased availability of general fund monies to plan and accomplish repairs and improvements. To a considerable extent, the state yielded its responsibilities regarding water projects to the federal government, which has been active during the 1950's, 1960's, and early 1970's in the construction of water projects. In many cases, repairs to state-owned water projects were undertaken only on the availability of federal funding. The sporadically depressed condition of the agricultural economy of the state further discouraged construction of new water projects and provided little incentive for individual farmers and ranchers and the water users associations to pay increased water costs to existing projects, so that the additional proceeds needed for an effective and aggressive maintenance program were simply not available. Indeed, a few projects had long-term contracts (in one case with a perpetual term) which did not recognize the need for escalation of assessments to offset both inflationary pressures and the increasing costs of maintenance due to the advancing age of the project.

In 1967 the State Water Conservation Board was replaced by the Montana Water Resources Board, responsible for the management of the state water projects as well as other activities, including water planning and water rights surveys. When executive reorganization of state government occurred in 1971, the Montana Water Resources Board was replaced by the Water Resources Division of the Department of Natural Resources and Conservation.

During the 45th legislative session in early 1977, the Department of Natural Resources and Conservation advised the Legislature through various committees that the Department had inadequate funds to effectively maintain the existing state water projects and that, because of physical degradation of the projects, the state could incur a large liability in the event of either catastrophic failure of a major dam or destructive flooding of agricultural lands from leaking canals owned by the state. The Department advised the Legislature that it would seek sources of funding from the federal government and other sources available to rectify this situation and would return to the next session of the Legislature with a comprehensive plan endorsed by the Board of Natural Resources and Conservation for either putting the state effectively in or taking it



completely out of the water resources development business.

In March of 1977, the Department delivered to each member of the Legislature a publication entitled State Water Conservation Projects (Montana Department of Natural Resources and Conservation, Helena, 1977) which essentially was a status report on the physical characteristics, present condition, and economic situation of 35 major state-owned water projects and a number of projects of smaller size and/or no longer active. A master list of existing projects was also supplied in this report, as was a general indication of the Department's intention regarding retention of a number of the smaller projects.

Over the past eleven months, these matters have been discussed in considerable detail by the Department Director and staff both with individual members of the Board of Natural Resources and Conservation and with the assembled Board. The Department's intention to find a solution to the dilemma posed by the state water conservation projects has previously been made clear to the Board. At this time, the Board believes that the Department has assembled a conceptual plan of action which can provide the long-term solution to the problems previously encountered in management of state water projects. The crucial element in the proposed plan is the hydroelectricification of state-owned dams and subsequent sale through long-term contracts of the electricity generated. The revenue thus derived would enable the state to satisfactorily repair and maintain existing projects and to construct new water resources projects. Additionally, implementation of the plan could aid in reduction of unemployment within the state, assist in alleviation of electrical energy shortages, provide further support to the agricultural community, and put the state of Montana back into the business of water resources development and maintenance on a financially, economically, and environmentally sound basis. Typical of the advantages and benefits which will be expected to ultimately accrue from full implementation of this plan are the following:

1. return of viable existing state-owned water projects to first-class physical condition;
2. addition of a small but necessary and important quantity of hydroelectric generation capacity to Montana's electrical system;
3. construction of additional state-owned or cooperative water projects, particularly smaller off-stream and tributary storage projects;
4. increased employment within the state;
5. improvement of the agricultural segment of our economy;
6. disposition of the water projects which should no longer be held or operated by the state;
7. placement of the state-owned water projects on a sound, business-like basis;

8. reassertion of state leadership over previous federal encroachments in the water project area;
9. increased recreational benefits;
10. potential enhancement of fish and wildlife habitat;
11. substantial demonstration to the state taxpayers that a state government agency and board can develop and implement creative and innovative programs in a business-like manner to the benefit of the entire state.

This conceptual plan is sensitive to the passing of time, partly because of the potential for lost opportunity resulting from undue delays, and partly because of the rapidly growing potential for the financial liability of the state should we suffer a catastrophic loss of one of our larger dams. This plan, with its program of rejuvenation of existing projects, can greatly lessen that liability.

## CHAPTER II

### THE OVERALL PLAN

This conceptual plan is based on the following assumptions:

1. The potential exists to install hydroelectric generation capability on a number of the state-owned water projects in such a way as to derive continued irrigation benefits as in the past, and yet add financial benefits applicable to rehabilitation of the state water project system from sale of the hydroelectric power produced by the projects. The primary operation of the projects would be as irrigation projects with resultant electricity considered a by-product.
2. The original bonding authority of the old State Water Conservation Board is still intact (although largely inactive) and can be modified if necessary and activated within a reasonable period of time.
3. Because of the varying economic success of the state-owned projects, and because of the universal potential liability of the state for every project regardless of the economic success of individual projects, the concept of regarding state-owned water projects as integral members of a total state-owned system is considered essential.
4. The proceeds from sale of hydroelectric power generated on state-owned projects can be used for the repair of existing projects, design and construction of new projects, and further hydroelectrification of other existing projects on the decision of the Board of Natural Resources and Conservation. This is to be done preferably through use of a revolving earmarked fund (to be established by the Legislature) or, less desirably, through line-item entry of such projects in the Department of Natural Resources and Conservation's budget, if electric generation proceeds must in the future be deposited in the state general fund.
5. The operation of hydroelectric facilities on state-owned dams will maximize income to the state rather than produce electricity at minimum cost.
6. Operation of the hydroelectric portion of state-owned projects will be handled completely under long-term sales and operation contracts by existing public or private utilities.

The key factor in the plan is the hydroelectrification of state-owned water projects. Because of the growing energy crisis and the relative low cost of installation of electrical generation equipment on existing dams, and because of the environmental advantage of hydroelectric generation compared to coal-fired electric generation, we believe there is a ready and profitable market for hydroelectricity generated on existing state-owned dams. A preliminary list of state-owned dams with hydroelectric potential is given in table 1.

TABLE 1  
STATE WATER PROJECTS WITH HYDROELECTRIC POTENTIAL

Broadwater-Missouri  
Painted Rocks  
Deadman's Basin  
Tongue River  
Ruby River  
Daly Ditches (Republican  
Diversion--low head)  
Willow Creek  
Nevada Creek  
North Fork of Smith River  
Upper Musselshell (Martinsdale Dam)  
Rock Creek (Glacier and Cooney dams)  
Middle Creek  
Flint Creek

Belief in the marketability of hydroelectricity generated at state-owned dams is initially confirmed in a recently completed feasibility study performed by Tudor Engineering Company of San Francisco, California, under contract to the Department of Natural Resources and Conservation. This company has an established record of engineering success in the hydroelectrification of a number of public and privately owned dams in California within the past few years. The study shows that hydroelectrification of an initial three state projects in Montana--namely Broadwater-Missouri at Toston, Painted Rocks on the West Fork of the Bitterroot River, and Deadman's Basin on the Musselshell--could produce revenues of up to one million dollars per year in excess of a reasonable amortization of the debt incurred in installation of the hydroelectric generation equipment. Funding for the hydroelectric generation equipment and its installation is proposed to come primarily from the proceeds of revenue bonds issued by the Board of Natural Resources and Conservation under the authority originally granted to the State Water Conservation Board in the early 1930's, provided that authority is still reasonably intact for this purpose or can be provided by action of the next Legislature. There are other possible sources of funding for this work, including utility financing and federal loans or grants. Hydroelectrification of the state-owned dams has as its main purpose maximizing the income from the properties to the state, so that the Board and Department will have available a new and reliable source of funding which will make possible the repair, maintenance, and new construction goals of this plan.

As previously mentioned, the proceeds from the sale of hydroelectricity generated on state projects must be available to systematically amortize the debt incurred from the sale of bonds to effect the hydroelectric conversions and to provide the Board and the Department with a source of funds to initiate and accomplish the repair, maintenance, and construction aspects of the plan. By amendment of the original State Water Conservation Board Act in 1935, that Board was allotted a "Conservation Revolving Fund," an earmarked fund available to the Board to accomplish the projects under its jurisdiction. While it is not essential that such a revolving earmarked fund be reestablished for use by the Board, it would certainly be desirable and would allow the Board of Natural Resources and Conservation to accomplish the full program outlined in this plan. Greater delays, longer lead times, and greatly decreased flexibility would result if the Board, through the Department, must request funding from the Legislature for additional projects by line item in the Department budget. The establishment of a revolving fund by the Legislature during the next session requires that the Legislature have sufficient confidence in the judgment of the Board of Natural Resources and Conservation in administering such an earmarked account, which would be funded solely from proceeds of electricity sales.

There are eight major elements or phases in this new conceptual plan for state water projects. These are shown schematically in figure 1 and with a proposed time schedule in figure 2. In summary, the eight phases are:

- I. Addition of hydroelectric generation facilities to three state-owned dams--initial increment.
- II. Establishment and operation of an earmarked revolving fund and program of rehabilitation of existing projects.
- III. Addition of hydroelectric generation facilities to state-owned dams--second increment.
- IV. Cooperative installation of hydroelectric generation facilities on privately owned dams in the state.
- V. New water development projects.
- VI. Addition of hydroelectric generation facilities to state-owned dams--final increment.
- VII. Disposition of the state-owned Daly Ditches Project.
- VIII. Exploitation of non-water-related assets of state-owned water projects and continued disposition of those water project assets which are no longer viable or essential to the state-owned water projects system.

Fig. 1. Conceptual Plan for Montana Water Resources Projects

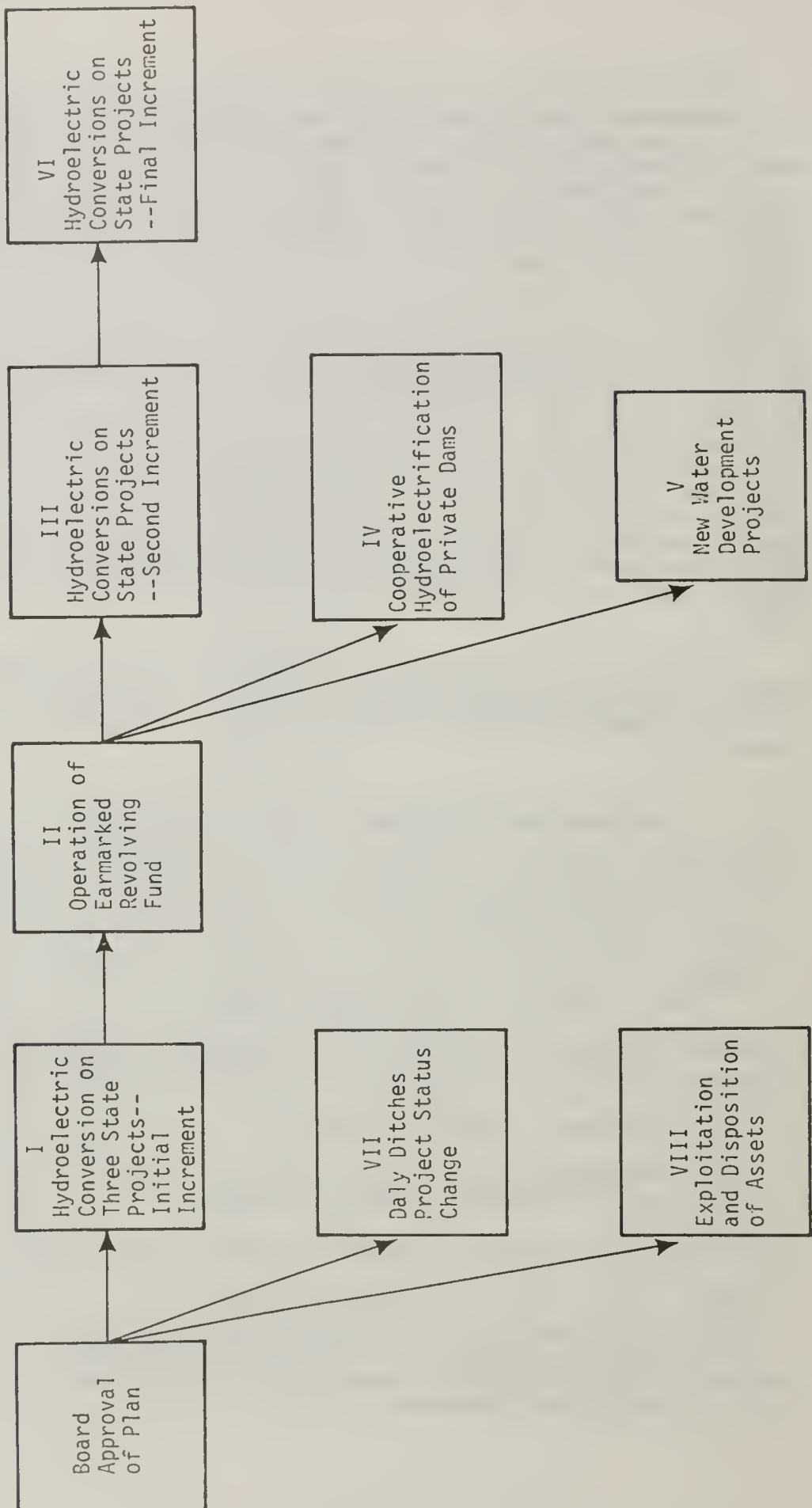


Fig. 2. Schedule for Conceptual Plan for State Water Development Projects

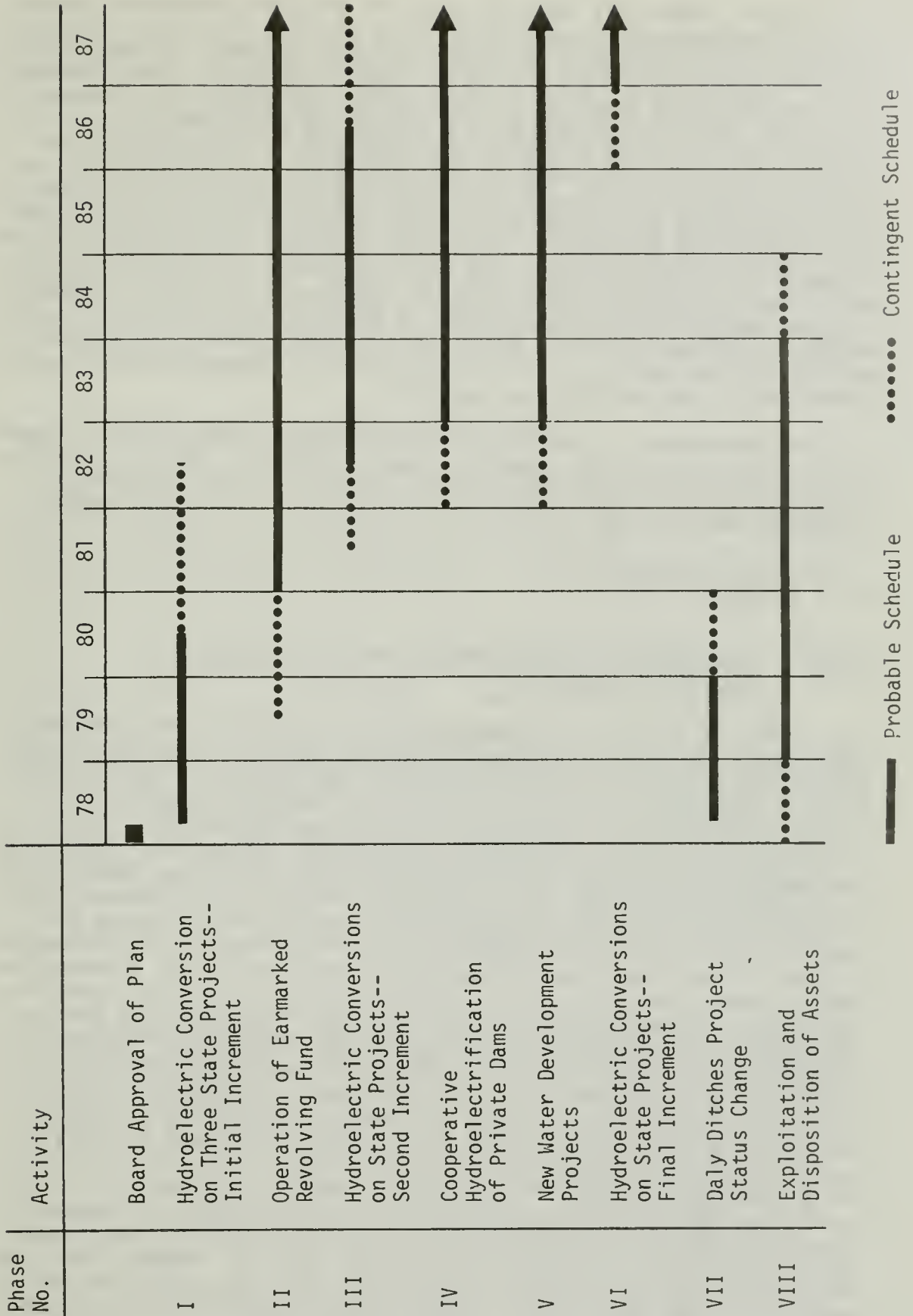


Figure 1 shows that the plan envisions one major sequence of events which is dependent on hydroelectrification of three state water projects through sale of bonds as a continuing source of income to allow activation of later phases. A reliable source of money is essential. While federal programs may supply a portion of the funding, the greater the financial success of hydroelectrification, the greater the independence (from federal control) of the Board and the Department in accomplishing the larger program described here. Two program phases are not dependent on and are of lesser significance than hydroelectrification, but are nevertheless important and can have a bearing on the business credibility of the Board and the Department. These phases concern reversing the net financial loss to the state on the Daly Ditches Project (Phase VII) and exploiting the non-water-related assets suspected to exist on a number of state-owned projects (Phase VIII). A final part of Phase VIII is a vigorous continuation of the divestiture program in which inactive or nonviable state-owned projects are disposed of or otherwise exploited as expeditiously and profitably as possible.

The Department is currently performing some activities with respect to the first phase of the program, notably feasibility studies, a preliminary survey of status of the Board's bonding authority, and activities related to securing water rights for hydrogeneration on state projects.

A brief discussion of each of these major phases in the new state water program follows.

#### Phase 1. HYDROELECTRIC CONVERSION ON THREE STATE PROJECTS-- INITIAL INCREMENT

Since the bulk of this program depends initially on the successful installation of hydroelectric generation equipment on three state-owned dams, a rather complete schedule of events and listing of action items has been prepared for this plan and will be presented in detail as Chapter 3 in this report. Much has already been accomplished in planning for this phase, particularly a study which examines basic technical and economic feasibility. Additionally, the Department has conducted discussions with a number of utilities and rural electric cooperatives concerning the possible purchase of power generated at the state projects. Vigilante Electric Cooperative of Dillon, Montana, has already applied to the Federal Energy Regulatory Commission (FERC), formerly the Federal Power Commission, for a preliminary permit to generate power at the state's Broadwater-Missouri Dam at Toston. The Department has been in contact with FERC and has been assured that the State of Montana, as a municipality and as owner of the dam, has a preferred position for hydroelectric generation at Broadwater-Missouri. Vigilante Electric's filing is the action of a prudent business man, seeking to arrange for additional generation capacity for his system at the least possible cost. Currently Vigilante Electric pays in the vicinity of 5 to 7 mills per kilowatt-hour for power it purchases from BPA, and the prospect of purchasing power from the Department of Natural Resources and Conservation's Broadwater-Missouri Project at 20 to 30 mills per kilowatt-hour is not particularly attractive to Vigilante Electric. However, the coop has received notice from BPA, as have BPA's other customers, that BPA cannot guarantee that it will be able to supply any increases in power demand above the level purchased in fiscal year 1983.



The initial planning done on the first increment of hydropower conversions indicates that there are a number of barriers which must be overcome before the program can be completed. These barriers will result in a protracted schedule, which is particularly frustrating because the three initial projects seem so easily attainable at this time. The Department estimates the cost of the complete Phase I program at somewhere between 25 and 30 million dollars. The protracted time schedule for this phase results from the uncertainty of the Board's bonding authority and from the virtual lack of front-end money with which to complete the various design studies, prepare a bid package, seek competitive bids, and arrange for the financing through the sale of bonds. If bonding authority must be updated or reinstated by the Legislature, relatively little will be accomplished in the entire Phase I program prior to approximately June 1979.

## Phase II. OPERATION OF EARMARKED REVOLVING FUND

Proceeds of electricity sales in excess of debt amortization on the first three state water projects converted to hydroelectric generation constitute the basic working capital available to the Board for engaging in an active program of water development. As things now stand, those proceeds would automatically be deposited in the general fund and would not be available to either the Department or the Board for projects unless specifically and individually authorized by action of the Legislature through normal budget procedures at each legislative session and would involve listing of these specific projects as line items within the proposed budget of the Department. Inherent in this process is built-in delay, political implications, and the relative inability of the Board or the Department to make major changes in plans for a specific proposed project in the period between legislative sessions. During a particularly tight budget year, the Legislature might be more inclined to utilize the proceeds of the electricity sales from state water projects for programs which they consider more pressing than constructing new state water projects or making major repairs to existing ones. Since the hydroelectrification proceeds will be the only funding available for a continuing program of water works, it would be, at the least, inconvenient for the Board and the Department to operate through the general fund.

There is a strong historical precedent for the setting up and operation of an earmarked fund under the direct supervision of the Board of Natural Resources and Conservation; the Conservation Revolving Fund was established by the 1935 Legislature to provide exactly the type of flexibility currently deemed extremely important. A water program of some magnitude could be operated in the conventional general fund, biennial budgeting manner, but this is not recommended by the Department. The Department observed in the last session of the Legislature a strong sense of opposition to earmarked funds. Many legislators felt strongly that the conventional budgeting channels provide for better legislative control of programs and prevent abuses which apparently have been encountered in the past with earmarked funds. A strong recommendation will be made to the next Legislature to establish the desired earmarked fund and provide for strict Board accountability to some specified legislative committee regarding operation of the fund. This

fund could not possibly be established before approximately April 1979. Once the fund is established, it will become operative when proceeds from electrical sales are received, probably sometime in 1981 or 1982. From that time on, this earmarked fund would be an important source of funding for further project work suggested by this plan, including a continuing program for rehabilitation of existing state water projects. Some portion of the earmarked fund would always be retained within the fund as a guarantee or backup for a least one year's bonding debt obligation. The existence of the earmarked fund, as well as the existence of an active bonding authority on the part of the Board, would not necessarily preclude the Board and the Department from going to the Legislature for general fund support of some particularly important and perhaps more costly project. The federal government would also continue to be an important source of funding which could be obtained either as loans or as grants and could be levered to some extent by matching state funds. There is strong support in the current U.S. Congress for inclusion of a substantial grant program in support of the hydroelectricification of existing dams within the United States. The Department will actively pursue and solicit funding available for water projects from any source, including federal. The existence of an earmarked fund under the control of the Board of Natural Resources and Conservation, however, would prevent domination of the state program by the federal government under the Golden Rule--he who has the gold makes the rules.

### Phase III. HYDROELECTRIC CONVERSIONS ON STATE PROJECTS-- SECOND INCREMENT

With the earmarked fund in operation and receiving regular proceeds annually from the sale of hydroelectricity on the first three state projects, it is anticipated the Board would utilize this money to assist in repairs on other existing state water projects. Priority would go to dams and reservoirs which themselves have significant hydroelectric generation potential after addressing critical rehabilitation needs. There are other state water projects which have a reasonably high potential for hydroelectric generation but were not considered for the first increment of conversion because of the need for costly repairs which would have to be accomplished before certification could be obtained from the FERC. As these repairs were being made, a second increment of hydroelectric generation installation would be planned and implemented. The earmarked fund would provide initial monies for the feasibility studies and other steps necessary leading up to the issuance of another bond issue. Obviously, this phase could not start until sometime in 1981 or 1982, and completion would not be expected until 1986 to 1988. Typical of the hydroelectric conversion projects which might be considered in this second phase would be Ruby Dam, the Tongue River Dam, and perhaps the Republican Diversion of the Daly Ditches Project or Cooney Dam of the Rock Creek Project.

### Phase IV. COOPERATIVE HYDROELECTRIFICATION OF PRIVATE DAMS

Within Montana, there are a number of privately owned dams with significant hydroelectric potential. In many cases, these dams are

owned by small, locally owned irrigation companies and operated in a manner similar to the state water projects, with similar problems. In some cases, these projects have a large indebtedness, growing maintenance costs, and growing reluctance on the part of members to increase their payments for water or maintenance.

It appears that there could be a mutually beneficial program instituted between the State of Montana and these private companies to install hydroelectric generation equipment on the private dams. The bonding authority of the Board of Natural Resources could be used, and the financial support provided to the private companies by the Board and the Department would be amortized with interest, plus a small service charge for administrative and engineering costs, through the sale of hydroelectricity in a long-term contract with local utilities. The only requirement which the Board and the Department would place on the private companies is that they sell the electricity at a price sufficient to repay the debt to the state. Since many of the irrigation company stockholders are also associated with rural electric cooperatives, it would be at local option whether to charge as much as the traffic will bear for the electricity or to make it available at the least possible cost to the cooperatives for their own service areas. A program such as this would help the agriculturally based irrigation companies keep their water costs low, ensure their ability to maintain their dam and reservoir in good physical condition, potentially assist them in amortization of any outstanding debt on the dam and reservoir, and would add renewable energy capability to the state's resources. Figure 2 shows this program to start probably no earlier than 1982 and more likely in 1983 or 1984. It could be anticipated that this program would go on into the 1990's.

The availability of federal funds to add to the Board-provided funds could be an important factor in this type of development. The Department believes that it is desirable for the Board to have a dominant position over the federal government in this type of development in order to ensure local control and will undertake studies regarding the feasibility of this program as soon as possible on the Board's behalf, assuming a reasonable source of planning funds can be identified.

#### Phase V. NEW WATER DEVELOPMENT PROJECTS

The Department believes that there is still opportunity within Montana for additional development of our water resources. Even though there may be problems associated with water rights, and though the cost of water project structures has become almost prohibitive, there is still opportunity for identifying and building new water projects which are economically, financially, and environmentally sound. Obviously, the Legislature shares this thought--HB 810 (1977 session) instructed the state conservation districts to identify suitable off-stream storage sites which could be developed for more efficient utilization of the state's water resources. The Department of Natural Resources and Conservation, through its Water Resources and Conservation Districts divisions, has been attempting to encourage the process by mandated by the Legislature. Unfortunately, the Legislature did not fund its mandate, and activities carried on thus far have been Department funded.

So far, a number of possible projects have been suggested to the Department, and several potential, small, off-stream projects are known to the Department through previous activities of the Water Resources Division and its predecessors. There are indications that the federal government is gradually withdrawing from the construction of the water projects built on a large scale during the last two or three decades. If so, a gap will exist for leadership in the building of small- to medium-sized water projects, particularly of off-stream storage, which would make possible maximum utilization of spring runoff waters, and that gap could well be filled by the Board of Natural Resources and Conservation. The earmarked revolving fund would provide a source of funding to support the necessary feasibility studies, and the Board's bonding authority could be utilized to support worthwhile projects. These projects would have to be economically and financially viable, including the repayment of interest.

This particular phase probably should not be undertaken until the success of the first increment of hydropower conversions on state projects has been demonstrated and the Department's and Board's credibility, and the strength of the Board's bonding authority, have been clearly shown. It is unlikely that this would happen before 1983, 1984, or even 1985. Despite the protracted schedule, work should begin in the near future to assemble an inventory of potential projects, with appropriate prioritization, which could be undertaken either in whole or in part by the Board and Department in the future.

#### Phase VI. HYDROELECTRIC CONVERSIONS ON STATE PROJECTS-- FINAL INCREMENT

As this water resources program successfully matures, and the last of the existing state-owned projects with hydroelectric potential are brought into good physical condition, it can be expected that a final program of conversion to install hydroelectric generation equipment would be completed. At the earliest, this phase would not begin before 1986 or 1987. Other than maintaining this phase as an integral part of the overall state plan, there is no need to initiate activity prior to the 1986-to-1987 date. Typical of projects considered in this plan would be Middle Creek, North Fork of Smith River, and Nevada Creek.

#### Phase VII. DALY DITCHES STATUS CHANGE

In 1942, the State of Montana assumed ownership and operation responsibility of the Daly Ditches Project in the Bitterroot Valley near Hamilton, Montana. This project remains the only state-owned project which is actually operated by state government. It has also been a consistent money loser, with a current book debit of some \$350,000. Over the 35 years that this project has been owned and operated by the state, this unamortized investment represents an average net loss to the state (or, in another sense, a subsidy to the Bitterroot Valley agricultural community) of around \$10,000 per year. This value does not reflect the assessment of interest charges over the years. At some point, the State Water Conservation Board decided not to charge interest on its investments in state water projects, primarily because of the

continuing and generally depressed condition of the agricultural economy. It is a separate matter of consideration for the Board whether this policy should be continued, and in preparation for making that decision a great deal of research--indeed, a separate report--must be assembled for the Board's consideration. Had interest been assessed on the state's net losses in the Daly Ditches Project at the nominal rate of, say, four percent, the total state investment (or loss) including actual capital investment and foregone interest, would amount to over \$900,000.

It would be irresponsible for the Board and the Department to fail to come to grips with this serious problem. Because there are many factors involved, a separate section of this report (Chapter IV) is devoted to options which the Department believes might be available for the Daly Ditches Project. The Department believes that the project is extremely important to the Bitterroot Valley and to the State of Montana, and its continued operation as an irrigation system is considered to be essential.

### Phase VIII. EXPLOITATION AND DISPOSITION OF ASSETS

Historically, the state water resources staffs have concerned themselves primarily with the water resource aspects of the property owned by the state in each of the individual state water projects. There has been little concern with the non-water-related assets of those individual properties. For example, Mr. Drum of our Board has mentioned the possibility of exploitation of the coal assets under our Tongue River Reservoir lands. A preliminary feasibility study of such an action is now in progress at Montana Tech under contract from the Water Resources Division of this Department. Renovation of a complete set of ranch buildings located on state-owned property at the Nevada Creek Project is in progress by the Department in the anticipation of renting the property for a substantial annual income, which will go to the general fund but will be credited against the debt accumulated on the Nevada Creek Project. The Department is starting a systematic review of all state-owned water projects with special attention toward non-water-related values which might be capitalized upon to render an additional return to the state and assist in amortization of debt. This is good business which we regard as an essential part of any long-range plan. The Department also continues to take those actions necessary to suitably dispose of abandoned water projects held by the state as has been discussed with the Board in the past. Our March 1977 publication, State Water Conservation Projects, includes a listing of the projects being considered for disposition and of progress made toward disposition. This too is good business. The Board's recent advice to the Department to retain all property which has potential for future storage reservoirs will be carefully adhered to.

In considering the future of existing state water projects the Department believes as follows:

1. For canal or pumping projects without significant impoundment, the state should turn title to these projects over to the water users association concerned as soon as the existing project debt is

amortized, assuming the project is in reasonably good physical condition. There is generally low enough liability on such projects that insurance can reasonably handle it; further, these projects consume Department personnel time on matters which could be just as well handled by the water users. Divestiture of these projects by the state would be the most economically efficient approach for all parties.

2. For projects having dams and reservoirs of any significant size, it is probably in the best interests of all for the state to retain ownership, even after the outstanding debt is amortized. There is high liability associated with dams which private groups are less able to bear than is the state, and it would seem unfair for the state to transfer that liability to a water users association along with title to the physical assets. Warhorse Project is an exception to this in that the Board has already made commitments as to its disposal, and it is a relatively low-hazard project in good physical condition.

### CHAPTER III

#### FIRST INCREMENT OF HYDROELECTRIFICATION OF STATE-OWNED PROJECTS

It has previously been pointed out that studies conducted for the Department by Tudor Engineering Company (San Francisco, California) indicate a strong potential for initial installation of hydroelectric generation facilities at three state-owned dams--Broadwater-Missouri Dam on the Missouri River at Toston, Deadman's Basin Dam off the Musselshell River, and Painted Rocks Dam on the West Fork of the Bitterroot River. Data on these three installations are included in table 2.

TABLE 2  
HYDROELECTRIFICATION DATA FOR  
FIRST INCREMENT OF CONVERSIONS ON STATE PROJECTS

PROJECT	HYDROELECTRIC INVESTMENT COST (\$)	ANNUAL COSTS (6.5% for 40 YRS)	INSTALLED CAPACITY (MW)	AVERAGE ANNUAL GENERATION ( $\frac{\text{MW-HRS}}{\text{YR}}$ )
Broadwater- Missouri	\$ 14,693,000	\$ 1,102,000	14.4	77,980
Deadmans Basin	3,636,000	282,000	2.6	10,300
Painted Rocks	3,534,000	300,000	5.2	16,150
TOTAL	\$ 21,863,000	\$ 1,684,000	22.2	104,430

NOTE: Annual costs are the sum of debt amortization (at 6½ percent interest over a 40-year period) and estimated annual operating costs. If federal grant monies can be obtained for capital investment, there will be a proportional reduction in debt amortization costs. All figures are taken from the Tudor Engineering Company's Report on Potential Hydroelectric Power for State Owned Dams (January 1978).

Accomplishing the proposed hydroelectrification will require the program schematically outlined in figure 3. Figure 4 outlines each of the eight major steps in the program and proposes a schedule for their

Fig. 3. Plan for Installation of Hydroelectric Capacity on State Owned Dams ---  
First Increment

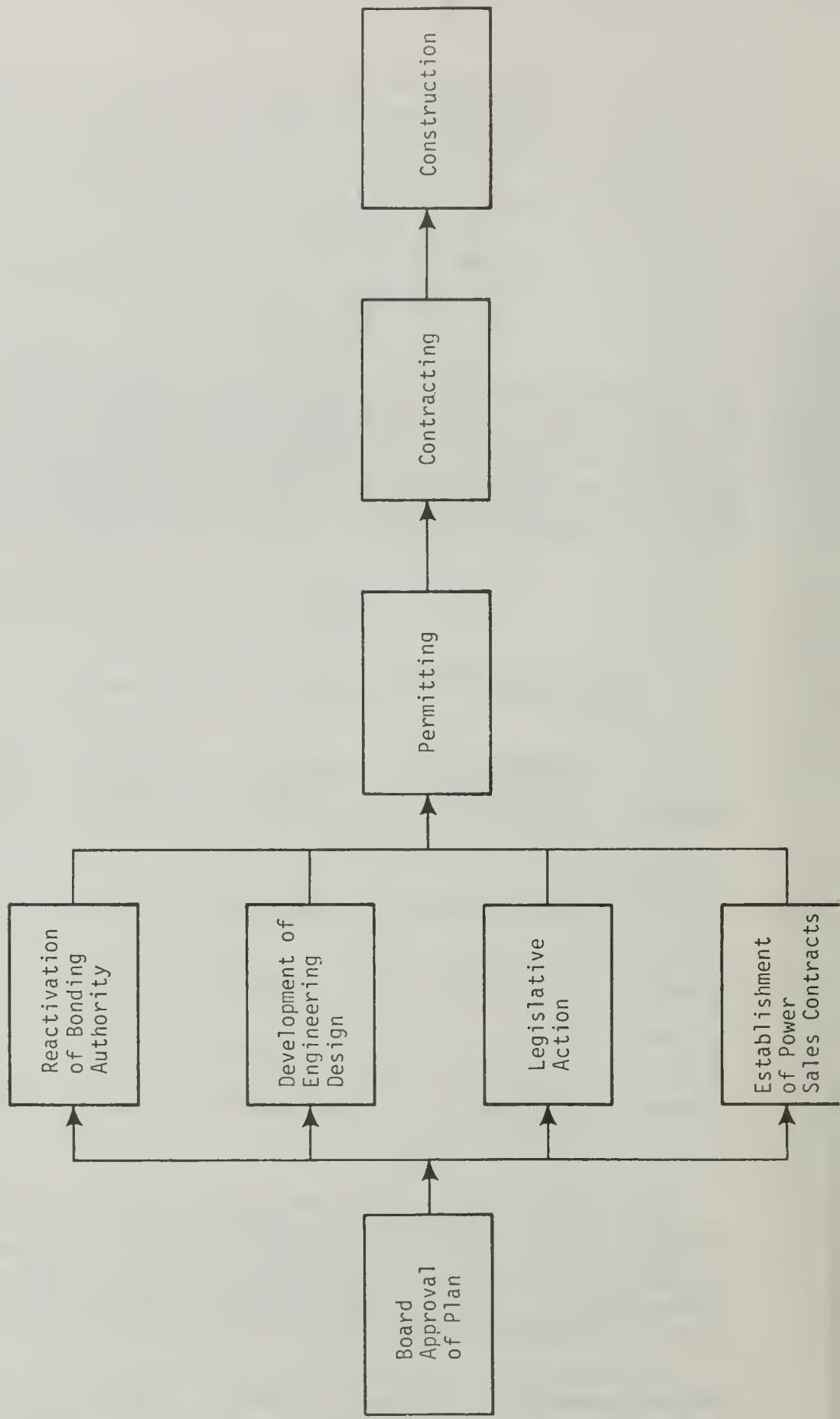
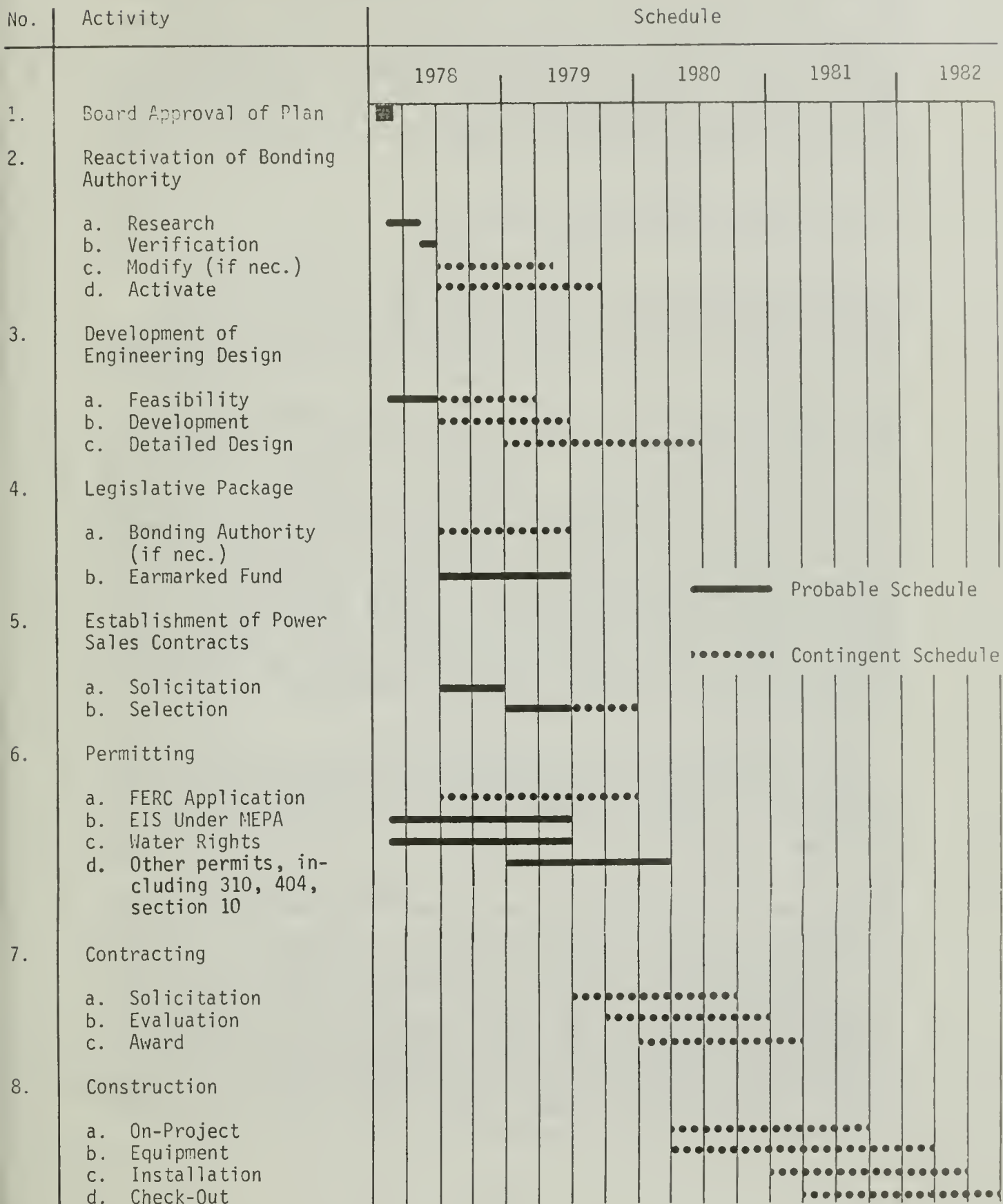




Fig. 4. Schedule for First Increment of Hydroelectrification of State-Owned Projects



completion. Because of the uncertainty associated with a number of the program steps, the most optimistic date for completion of the initial three hydroelectric installations would be approximately mid-1981, and a more likely completion date would be in mid- to late 1982. Note in figure 3 that there are four program steps which are to be accomplished in parallel. When these first parallel activities have been satisfactorily completed, final permitting from the Federal Energy Regulatory Commission may be accomplished and actual contracting and construction can be undertaken. A description of each of figure 3's steps (following step 1, initial Board authorization, granted in March 1978), is provided below.

## Step 2. REACTIVATION OF BONDING AUTHORITY

Under the water resources laws of Montana the Board of Natural Resources and Conservation retains the bonding authority originally established in the mid-1930's for the State Water Conservation Board. In the last ten years this bonding authority has been used but little, and then the bonds were sold only to the federal government, primarily for financing of relatively low-investment repairs on existing projects. The maximum usage has been for some several hundred thousand dollars. Since the bonding authority is the primary source of funds expected to be available for installation of hydroelectric generation equipment on the three state projects, it is essential that a careful investigation be made of the current status of that authority and that any deficiencies or problem areas identified be corrected by whatever steps are necessary. (There is a possibility that financing of the hydropower installations could be handled by the utility or rural electric cooperative which would ultimately purchase the power from the individual projects. This would be a preferable course of action if a more advantageous rate of interest were available to the utility. In this case, of course, the Board's bonding authority would not be needed. The utility would probably own the electrical generation equipment and would pay the State of Montana some type of use fee for rental or a combination of use and lease fees.)

The activities which will be accomplished in this step include research, verification of bonding authority viability, modification of that authority if necessary, and, finally, activation of the bonding authority in the amount necessary to finance the first increment of hydropower projects. The research effort will be conducted by the Department's Legal Staff, with assistance as necessary from the Attorney General's Office, the Department of Administration, and possibly an outside law firm specializing in bonding matters. Following verification, which will consist of a legal opinion as to the current status of the bonding authority, either modification or activation can be initiated. Some modification may be required because the existing bonding authority (as understood by the Department) does not pledge the full backing of the State of Montana to a given bond issue, which may be required in order to finance the multimillion-dollar amount required for the first increment of hydropower conversions. If legislative changes are required, bonding authority cannot be updated until after the next legislative session or approximately in June of 1979. There is also a possibility that a court test of any new bonding authority would be necessary.

### Step 3. DEVELOPMENT OF ENGINEERING DESIGN

Figure 4 shows three principal activities under this step. The first activity, a feasibility study, is believed to be virtually complete as presented in the Report on Potential Hydroelectric Power for State-Owned Dams (Tudor Engineering Company, San Francisco, 1978). It is expected that some feasibility studies by the Department's staff will be necessary. In addition, Tudor Engineering Company has applied to the U.S. Department of Energy for a grant to accomplish detailed physical and mathematical modeling of the Broadwater-Missouri Project to test the potential of a low-cost vertical turbine for that project. At the request of the Department, Tudor Engineering Company has included in its proposal provisions for a subcontract to be awarded to a Montana engineering firm in support of the modeling efforts.

The next activity in this step involves a complete design effort and initial specification of construction and equipment details. The estimated cost of this type of study for the three state projects is approximately \$200,000.

Vigilante Electric Cooperative of Dillon, Montana, is particularly interested in the Broadwater-Missouri Project, and its manager requested the support of Senator Metcalf's Office in obtaining a development-level study by the U.S. Bureau of Reclamation. It is our understanding that this study has been approved by the Bureau but cannot be initiated until next fiscal year. Personnel of the Department of Natural Resources and Conservation plan to meet with Bureau of Reclamation officials in Billings to attempt to have the date of initiation of the study moved into the current fiscal year and to see if the Bureau will also undertake development-level studies on the Painted Rocks and Deadman's Basin projects. It is anticipated that completion of this level of planning will provide a sufficient basis for sale of revenue bonds. The final segment of this step would be a detailed design phase in which the final details of the construction and equipment are specified and a complete contract bid package assembled. It may be possible to fund this step from Department project funds or with proceeds from sale of bonds. There is also a good chance that pending federal legislation will be passed which will offer grant support to small hydroelectric conversions or existing dams. The Department will apply for such support, when available, and final design could be so financed.

### Step 4. LEGISLATIVE PACKAGE

Activities required under this step include modification of the Board's bonding authority by the Legislature, if necessary, and establishment of the desired earmarked or revolving fund for deposit of proceeds of electricity sales. These activities have been adequately discussed earlier in this report. Department personnel would be responsible for facilitating these activities. The expected completion date would be April 1979, corresponding with the completion of the legislative session.

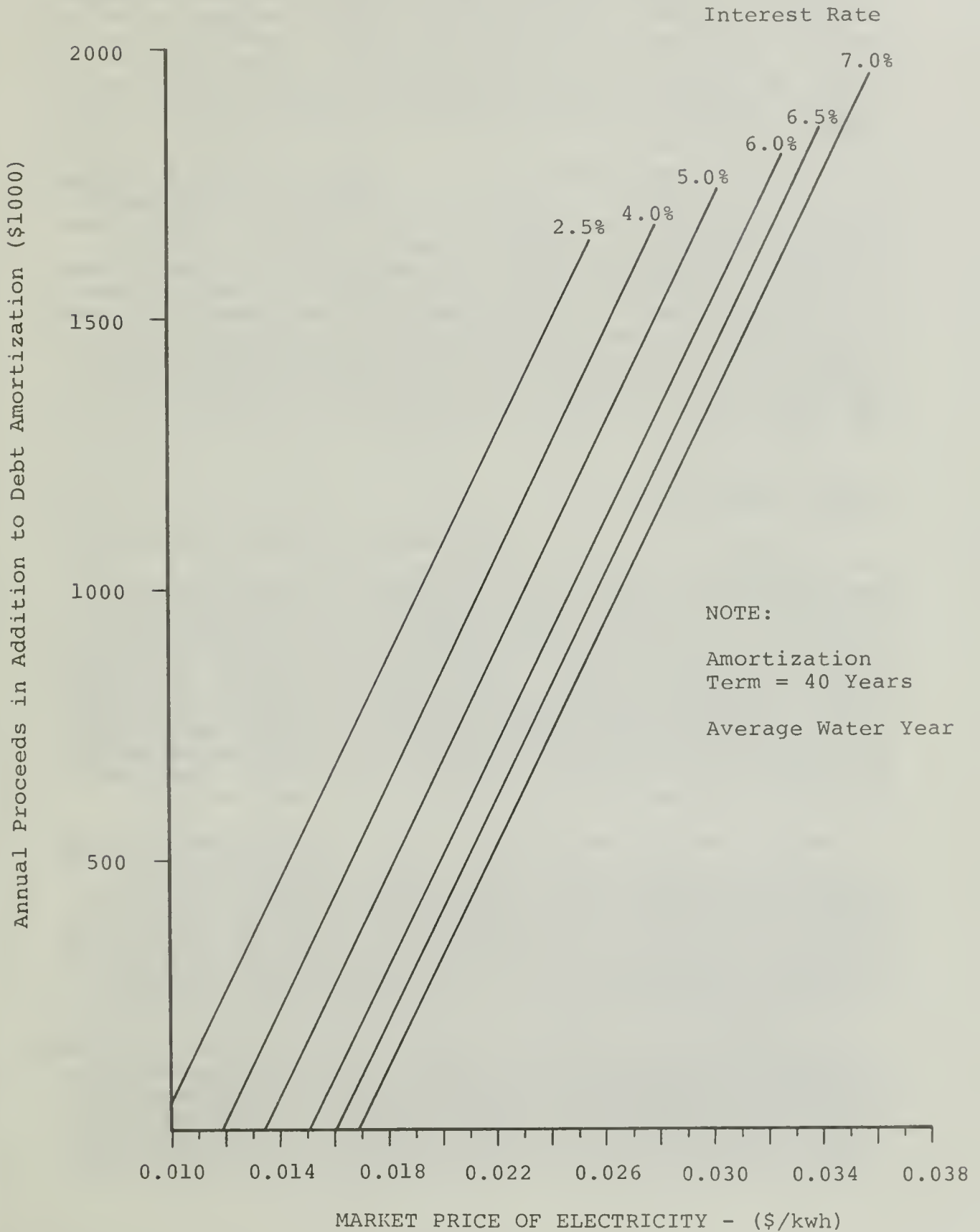
## Step 5. ESTABLISHMENT OF POWER SALES CONTRACTS

During the initial feasibility studies, either Department personnel or employees of Tudor Engineering Company contacted major Montana utilities and those rural electric cooperatives with service areas in the vicinity of the three projects under consideration for expressions of interest in purchasing the power from the three projects. The response was cautious and not overwhelming except in the case of Vigilante Electric Cooperative of Dillon, which appears anxious to obtain the electric power generated from the Broadwater-Missouri Dam at Toston. (Vigilante has plans and a preliminary FERC permit application to electrify this dam.) It can probably be safely said that there is interest in purchasing electricity from these three state projects if the price is right. It is clear to the Department that Vigilante Electric Cooperative is primarily interested in purchasing power for its system at a rate similar to what they now pay the Bonneville Power Administration--5 to 7 mills per kilowatt-hour. It would seem that a Department-desired wholesale price of 20 to 30 mills per kilowatt-hour could still be favorably considered by Vigilante, since that power purchased at the higher price could be melded with their low-price BPA power to provide a system customer price of only a little more than now charged. A wholesale price of 20 to 30 mills may seem exorbitant now, but it is expected that power purchased from new thermal power plants within the next three or four years will cost at least 30 mills per kilowatt-hour, wholesale.

It has been previously stated that the Department recommends a rate structure sufficient to make return to the state of approximately \$1,000,000 per year in addition to debt-amortization and O&M expenses. This magnitude of profit is considered necessary to get on with the business of upgrading and rehabilitating other state water projects. If it is assumed that a 40-year amortization period for bonded debt is reasonable, and a 6½ percent interest rate is charged, debt-amortization and annual operating costs alone would require a marketing price of approximately 20 mills per kilowatt-hour. Realization of the one million dollars per year in proceeds in addition to the debt amortization dictates a market price of approximately 26 mills per kilowatt hour under these same circumstances. Figure 5 illustrates the effect of a variety of interest rates on market prices of electricity and corresponding annual proceeds in addition to debt amortization. For example, if rural electric cooperatives were able to obtain financing for the three projects at a 2½ percent interest rate with the same 40-year amortization schedule, debt amortization and annual costs would be equivalent to approximately 9 mills per kilowatt-hour, and a wholesale market price of 19 mills per kilowatt-hour would realize the one-million-dollar-per-year income for the Board's proposed earmarked fund. The Department is not suggesting the manufacture of cheap power; rather, the conceptual plan was designed to save the entire state water project system by charging full market price for electricity generated on state projects.

It is not clear if it would be necessary to solicit long-term buyers of electricity from the state projects on a competitive basis, or if the Department could negotiate specific long-term agreements. This, too, will be resolved by Department studies. In either case, it is expected that this initial solicitation activity could be accomplished

Fig. 5. First Increment of State Water Project Hydropower Conversions:  
 Net Proceeds at Several Interest Rates and Market Prices



by the end of calendar year 1978 and a final selection process and agreement as to terms of long-term contracts completed sometime in 1979. This activity is important because the long-term contracts for power sales constitute the basis for the sale of bonds for installation of the generation equipment. The Department would conduct the power sale contract negotiations, with final contract approval reserved for the Board. It is possible that a suitable power sales contract could perhaps not be obtained for one or more of the projects, or that considerable variation in contract terms between projects would have to be allowed.

A feature of the contract would be a requirement for the utility or rural electric cooperative to operate the electrical generation equipment on the project (an additional cost for the utility). The Department is not proposing that state government operate electric utilities. Provisions for operation in harmony with the primary irrigation mission of the project would be included in the contract. It is possible that an additional operations and maintenance (O & M) charge would be included in the contract, but more reasonably, the project-exceptional O & M charges which the hydroelectric generation facilities would be expected to bear would be considered part of the \$1,000,000-per-year proceeds for the earmarked fund, and exceptional maintenance costs would be handled from that source.

#### Step 6. PERMITTING

The permitting activities comprise four distinct and equally important efforts which must be accomplished as shown in figure 4. First, application must be made to the Federal Energy Regulatory Commission for permission to install hydropower equipment on the three state-owned projects. It is possible that FERC permits will not be required on all three projects, since it is believed that this process applies only to projects in navigable streams. There are several stages of this process, ranging from the preliminary applications (one for each project) which very generally describe the proposed project, to complete applications which include complete details of the installation and proposed operation. Much of the information required for these federal permits will come from the engineering and design studies described previously.

While a final determination has not been made, it appears likely at this time that a complete environmental impact statement should be prepared under the provisions of the Montana Environmental Policy Act. Hydropower projects of this size do not fall under the provisions of the Major Facility Siting Act, hence no application under that Act would be required. The Water Resources Division of the Department would have responsibility for preparation of the environmental impact statement, portions of which would be required in the application to the FERC.

The Department has already established contact with the FERC regarding requirements for permits for these projects. Basically, these contacts have been for the purpose of obtaining information, and the Department is now preparing preliminary applications for the three proposed projects in the first increment of conversions. As previously mentioned in this

report, Vigilante Electric Cooperative has filed a preliminary application for a permit to the FERC on the Broadwater-Missouri Project at Toston. The FERC advises that the Vigilante application does not compromise the position of the Board and Department of Natural Resources and Conservation as a municipality and as the project owner. Much of the information used by Vigilante in its application to the FERC was obtained from the Department. At the present time, a cooperative spirit exists between the Department and Vigilante on the Broadwater-Missouri Project, although there are philosophical differences of opinion on what the price of the power should be. The legal unit of the Department has completed a preliminary compilation of information needed for the Department's initial request to FERC.

The State of Montana, through its Department of Natural Resources and Conservation, holds extensive water rights on each of the projects proposed for this first increment of hydropower conversions. These water rights, however, do not appear to provide for generation of electric power as one of the granted beneficial uses. On December 28, 1977, the Department filed an application with the Water Rights Bureau of the Water Resources Division of the Department for beneficial use of water for hydroelectric power generation at the three projects. It is possible that both upstream and downstream users and potential users may file objections to these applications, although no changes to the amounts of water effectively diverted at the present time are expected, and the new water use permits would primarily provide for the additional beneficial use of hydroelectric generation from waters that are already passed through in the three state projects.

Prior to initiation of construction at the three projects, it is anticipated that approval under the Montana Streambed and Land Preservation Act will be obtained from the cognizant conservation districts serving the areas in which the projects are located. This assumes acceptance of equivalency of the state law to federal 404 permit provisions. It may also be necessary to obtain a federal Section 10 permit for the Broadwater-Missouri Project from the Corps of Engineers. Again, no particular problems in obtaining such permits are anticipated at this time.

#### Step 7. CONTRACTING

Successful completion of the preceding steps, including the permitting and financing, would allow the Department to proceed with the actual contracting and construction phases of the three projects. It appears that the best way to proceed would be to go out for competitive construction bids under three separate procurement packages, one for each of the three projects. It is proposed that solicitation would be primarily of Montana-based contractors, assuming that this would be legal and that an acceptable response would result. It is possible that a single procurement to one contractor for the three projects could result in some cost savings, and this will be thoroughly studied before the final bid package is brought to the Board for approval. At the present time, the Department believes that there is substantial advantage in utilizing local construction firms. This maximizes the employ-

ment of local labor and maintains a high level of local interest in the projects. Only a substantial cost advantage in placing all three contracts with a single firm would cause the Department to recommend against the utilization of three separate contracts.

#### Step 8. CONSTRUCTION

In general, the construction phase would involve considerable modification to the existing dams as well as the installation of foundations and structures to support and house the hydroelectric generation equipment. The on-project work would involve such tasks as alteration of outlet works, installation of additional ducting and control gates, and the possible addition of access routes to the new power-house sites. A turnkey type of project is envisioned in which total responsibility for installation and check-out would fall to the successful contractor. Included in this would be the ordering of the turbines and generator equipment. While this equipment would be specified by the state, the turnkey procurement of equipment by the contractor would tend to provide for better control and centralization of responsibility in a single source. To the maximum extent possible, the mechanical equipment to be installed at the projects should be procured in or through Montana firms. Since there are currently no Montana firms producing hydraulic turbines or hydroelectric generators, it does not seem likely that the hardware for these projects will be a large source of income to Montana firms, although structural components such as piping, valves, and structural steel could be procured within the state.

The above-listed steps and activities generally cover the first increment of hydroelectric conversion on state projects. It is possible that within this projected time frame only one or two of the three projects would be undertaken. The most likely to be successfully pursued is the Broadwater-Missouri Dam at Toston because of its high potential for energy generation. It may be that the other two projects would have to be deferred for a few years until the expected increases in energy costs make them sufficiently attractive to demand a power sales contract with financial conditions mutually desirable for the state and for the utility purchasing the power.

It is not proposed that the planning and preparation for this first increment of hydropower conversion be referred to the Legislature for line item general fund support. It seems probable that the financing could be taken from a combination of proceeds from bond sales, existing Department project funds, possible federal support through the U.S. Bureau of Reclamation for design activities, support from the utilities which would be interested in purchasing the power, and the funds which may result from the potential federal program anticipated by provisions of the new Energy Bill which would provide financial support for installation of hydroelectric generation equipment at existing dams. Appropriate budget amendments covering the additional funds would be necessary. The Department proposes to continually consult with the Board on the methods and sources of funding for the various activities which have been described for this program, and the ultimate success of the program is believed to depend heavily on the establishment and continuation of the complete cooperation between the Board and the Department.



## CHAPTER IV

### DISPOSITION OF THE DALY DITCHES PROJECT

The Daly Ditches Project, located in Ravalli County, provides irrigation water for about 17,000 acres of agricultural land in the Bitterroot Valley. The project is unquestionably of great economic importance to the Bitterroot Valley and has considerable historical significance. The following excerpt from the 1961 Kelly report summarizes the project's development.

This project consists of 110 miles of canals commonly known as Republican Ditch, Hedge Ditch, Ward Ditch, Skalkaho Hi-Line Ditch, Gird Creek Ditches, and three small storage reservoirs located on tributaries of Skalkaho Creek and distribution laterals and waste ditches. The project serves 17,500 acres of land in the Bitterroot Valley, Ravalli County. It was acquired by the Board on October 1, 1942 from the Ravalli Land and Irrigation Company, which company no longer could guarantee a water supply for the lands served by the project.

The Republican and Hedge Ditches divert water from the Bitterroot River, the Ward and Skalkaho Hi-Line ditches from Skalkaho Creek and the Gird Creek Ditches from Gird Creek.

The Republican Ditch was originally constructed by the Republican Ditch Company prior to the year 1885 and has a decreed water right from the Bitterroot River of 150 CFS as of June 1, 1885; in 1901 the canal right of way and water right were conveyed to the Ravalli Land & Irrigation Company, and by it deeded to the State Water Conservation Board on October 1, 1942. This ditch can also pick up water from Skalkaho Creek if available.

The Hedge Ditch was constructed in most part by the late Marcus Daly and all rights of way and water rights were conveyed by Margaret P. Daly, for herself and as executrix of the will of Marcus Daly, to the Ravalli Land and Irrigation Company on December 20, 1901, and by it conveyed to the State Water Conservation Board on October 1, 1942. This ditch has a decreed water right from the Bitterroot River of 140 CFS as of April 15, 1898, and can also pick up water from Skalkaho Creek when available.

The Ward and Skalkaho Hi-Line ditches were also constructed by Marcus Daly and later conveyed to the Ravalli Land & Irrigation Company the same as the Hedge Ditch, and then to the State Water Conservation Board as of October 1, 1942. Water rights decreed

from Skalkaho Creek dating from June 15, 1865 to May 1, 1899, totalling 238.52 CFS are available for the irrigation of lands with ditches diverting from Skalkaho Creek. Also the right to exchange waters, now owned by the State Water Conservation Board in the Bitterroot River, for waters appropriated and used from Skalkaho Creek, and the right to divert said waters received in exchange through the ditches of the Board conducting said waters on to higher lands not irrigable from the Bitterroot River, mainly through the Ward and Skalkaho Hi-Line ditches was conveyed.

The Gird Creek Ditches are the same as the other ditches acquired by the State Water Conservation Board from the Ravalli Land and Irrigation Company, and includes all the waters of Gird Creek, which is an unadjudicated stream, and which includes all of the waters naturally in Gird Creek or brought into the Gird Creek drainage from any other source of supply (mainly from Hi-Line Canal from Skalkaho Creek).

There are three small storage reservoirs on the Skalkaho Creek drainage with a total capacity of 440 acre feet of water, which were constructed by the Ravalli Land and Irrigation Company on Forest Service Lands in the years 1925 and 1956, under permit from the U.S. Forest Service. These waters are usually released from storage in late August to augment the supply of water in Skalkaho Creek.

Water Users' Association: The project is presently operated and maintained by the State Water Conservation Board; however, the Ravalli Water Users' Association was incorporated May 7, 1952, and its members are the water users from the project. Its duly elected Board of Trustees consult with the State Water Conservation Board on all matters of reconstruction, operation, maintenance and water distribution in order that the water users may have a voice in these matters.

It is contemplated that in due time the water users will perfect an organization and take over the operation and maintenance of the project and relieve the Board of this obligation.

A large irrigation system such as the Daly Ditches Project with excellent water rights, diverse sources of water, and a long, established history, should have an excellent potential for success. However, that success has been elusive, probably for the previous owners and certainly since the state took over ownership and operation of the ditches in 1942. The following excerpt from the Department's March 1977 report, State Water Conservation Projects, indicates the principal problem.

When the state took over the project in 1942, water purchase contracts with individual water users were transferred to the state along with the project. These contracts called for delivery of water at a fixed price (\$3.00 per acre) and did not allow for the inflation of delivery costs. Execution of major repairs needed on this project has been

stymied by lack of funds due to these unique water purchase contracts. The Department has been forced to operate this project at a substantial loss. Consequently, the legislature has been reluctant to invest much money in the Daly Ditches Project.

In 1973, the Department assessed all water users, including the users with old \$3.00 contracts, an equitable share of the principal and operation and maintenance costs of the project. Several of the old contract holders agreed to pay in full, but several more refused. The largest water user, Bitterroot Stock Farm, Inc., filed a civil action involving an injunction preventing the Department from enforcing the larger assessment and requesting 2.5 million dollars in the event that the agreements cannot be specifically performed. The lawsuit, now pending, is expected to be tried later this year. The Department's position is that the contracts are either void or allow for an increase in rates. Meanwhile, a large number of water users have been paying only \$3.00 per acre.

In 1975, contracts not paid by the due date of January 29 were cancelled. The cancelled water users were allowed to enter into the new contract which requires the water user to pay his share of operating expenses. Contracts entered during the past few years allow the Department to adjust the water rates to meet delivery costs, which in 1976 were \$9.07 per acre.

A complete rehabilitation program for the project was planned by the Department in 1972 with the assistance of the SCS and USBR. The rehabilitation program includes replacement of the Republican Diversion Dam and replacement of all those canal structures expected to fail within the next fifteen years. Several smaller structures are being repaired or replaced each year as money becomes available in the Department's budget, but progress has not been sufficient to keep ahead of problems that occur due to deterioration of the project.

For rehabilitation of the larger structures, financial assistance may be available in the form of a fifty-percent grant through the RC&D program and a low-interest loan for the remainder from the Farmers Home Administration (FHA). Thus far, it has not been possible to take advantage of this assistance partly because repayment of an FHA loan cannot be secured under the existing water purchase contracts.

The Republican Diversion Dam, an old, wooden structure which has deteriorated to an irreparable condition, is one of the larger structures included in the rehabilitation plan. Temporary repairs failed to withstand the flood in spring of 1974, and part of the structure was lost. Emergency repairs in spring of 1975 have kept the remaining parts of the structure functional thus far; it is hoped the structure will last

until some source of funds can be found to finance a new diversion dam. If the dam fails, the water supply to several thousand acres of land will be substantially reduced until the structure can be replaced.

Earlier in this report, reference was made to the indebtedness of the Daly Ditches Project. Table 3 provides a historical compilation of the financial condition of the project from 1942 to June 30, 1977, not including the effects of interest foregone by the old state water boards as a policy matter on this project as well as on other state-owned projects. Table 3 shows that there were a number of years, particularly in the 1960's, in which the project showed income greater than debits. The debit position is relatively small on an annual basis, and additional income either from increased receipts from water users or from some other source such as hydroelectrification of one of the structures might put the project in a more favorable financial position. However, because the Daly Ditch Project is large, relatively unconsolidated, of advanced age, and given to deterioration of its many structures, its future is likely to involve ever-increasing costs and a great reluctance on the part of water users to pay the higher water costs which would be necessary to completely revitalize the system.

It has been previously mentioned that this is the only state-owned water project which is operated directly by the Department of Natural Resources and Conservation. The Kelly report suggests that the State Water Conservation Board fully expected the Ravalli Water Users Association to eventually assume operation of the project. This has not occurred, despite repeated efforts by the State Water Conservation Board and its successor organization, the Department of Natural Resources and Conservation, to transfer ownership to the water users association. Consequently, the Department operates the project with the equivalent of approximately five full-time employees, all included under the state classification system and drawing all benefits which accrue to any state employee. The Department considers this to be unfavorable from the standpoint of citizen relations, since the performance of a service function such as the operation of a water project has particular problems for a government agency. For example, several Daly Ditches water users have advised the Department Director within the past year that the project loses money because it is run by bureaucrats who do not work particularly hard. The feeling of the water users is that the project could be operated by fewer people and more efficiently, yet no one private individual or group will take over that assignment. The 1977 water year produced a short water supply, and at several times during the irrigations season the Department Director received direct complaints from Daly Ditches water users that they were being unfairly treated in allocation of water by Department employees. The Department Director dispatched an engineer to thoroughly check out these allegations. The investigation showed not one bit of evidence supporting the charges and in fact indicated that the Department employees have managed to do a respectable job in water distribution in the face of short water supplies. The current manager of the project has carried on an excellent program of refurbishment of the smaller structures on the project, and has made real strides in restoring the ditch system to good condition. He is considerably handicapped by lack of up-to-date, mechanized equip-

TABLE 3

HISTORICAL RECAPITULATION OF FINANCIAL CONDITION OF  
DALY DITCHES PROJECT, SEPTEMBER 30, 1942 TO JUNE 30, 1977

Period Ending June 30	Debits	Credit	Book Account at End of Period
1943	\$ 26,375.67	\$ 737.75	\$ 25,637.92
1944	22,696.56	21,639.10	26,695.38
1945	27,267.49	21,281.65	32,681.22
1946	24,995.17	23,059.75	34,616.64
1947	23,887.81	20,141.98	38,362.47
1948	26,363.25	20,896.08	43,829.64
1949	49,161.89 <sup>a</sup>	15,785.91	
		20,859.15	56,346.47
1950	71,443.74	20,721.88	107,068.33
1951	94,582.40	25,478.93	176,171.80
1952	44,453.97 <sup>a</sup>	1,181.26 <sup>b</sup>	
		96,637.67 <sup>b</sup>	
		42,318.58	80,488.26
1953	116,981.52	41,766.18	155,703.60
1954	212,457.10	40,816.47	327,344.23
1955	40,739.78	43,633.58 <sup>c</sup>	
		21,038.35 <sup>c</sup>	303,412.08
1956	45,604.46	40,001.92	309,014.62
1957	52,591.56 <sup>d</sup>	42,113.20	319,492.98
1958	58,717.71 <sup>d</sup>	37,607.27	340,603.42
1959	49,129.76	44,519.64	345,213.54
1960	64,990.04	43,561.38	366,642.20
1961	78,182.87 <sup>e</sup>	48,377.14	396,447.93
1962	34,689.59	45,751.82	385,385.70
1963	39,564.50 <sup>f</sup>	42,318.45	382,631.75
1964	51,780.64 <sup>f</sup>	49,360.43	385,051.96
1965	32,474.35	48,428.64	369,097.67
1966	39,690.95	45,247.93	363,540.69
1967	28,667.64	53,081.58	339,126.75
1968	31,170.57	50,639.22	319,658.10
1969	33,056.34	52,216.79	300,497.65
1970	36,964.21	52,825.44	284,636.42
1971	61,635.08 <sup>g</sup>	53,647.61	292,623.89
1972	68,894.19 <sup>h</sup>	65,224.69 <sup>j</sup>	296,293.39
1973	110,338.61 <sup>i</sup>	100,401.35 <sup>j</sup>	306,230.65
1974	87,417.94 <sup>k</sup>	97,697.75 <sup>l</sup>	295,950.84
1975	79,466.03	72,068.00	303,348.87
1976	95,485.45	64,111.02	334,723.30
1977	87,251.07	66,611.63	355,362.74
	2,049,169.91	1,693,807.17	

- a) Equipment cost charged out.  
b) Charged off.  
c) Materials purchased for Skalkaho Hi-line Canal flume and not used as construction was made by steel pipeline, charged out.  
d) \$4,500.00 returned to Association to purchase back-hoe.  
e) Includes \$31,255.11 payment to Ricklin Construction Co.  
f) Includes \$15,877.00 payment for truck-mounted crane.  
g) Includes \$23,608.25, major rehabilitation costs for Hedge-Skalkaho and Republican structures.  
h) Includes \$25,907.29, major rehabilitation costs for Ward-Hughes and Baily structures.  
i) Includes \$37,859.94, amount of pool agreement #51-52-53 and \$15,873.78 costs for Winters flume.  
j) Includes \$26,495.70, reimbursement for the first invoice of pool agreement #51-52-53 and \$1,310.00, reimbursement for AG 30-SCS-00094.  
k) Includes \$8,243.98, costs for Winters flume.  
l) Includes \$13,413.89 reimbursement for Winters flume and \$11,348.16 reimbursement for second invoice of pool agreement #51-52-53.

ment essential to the proper operation of a system of this size. The state budgeting system requires capital equipment to be procured only after approval by the Legislature in the Department's budget. Capital equipment for the Daly Ditches Project requested in the last legislative session was not favorably considered by the legislative budget committees. The Department and the Daly Ditches Project manager face two more years of project operation with obsolete and/or defective equipment.

It is clear to the Department of Natural Resources and Conservation that state government should not operate a water project such as Daly Ditches. That is the function of a water users association, as is customary on virtually every water project within the State of Montana. Continued operation by the state can only result in poor relationships between the water users and the Department and continued financial loss to the State of Montana. This loss will consist not only of inability to pay the existing debt; it is fully expected that there will also be a regular annual addition to the debt. Whatever means of addressing the problems of the project is selected by the Board of Natural Resources and Conservation, it is imperative that that solution involve the withdrawal of the Department from its current role of operator of the project.

The Daly Ditches Project is of great economic importance to the agricultural economy of Ravalli County, and every possible means should be taken to ensure continued operation of the project as a source of irrigation water for the Bitterroot Valley. Until financial viability can be established, it is unlikely that financial support for rehabilitation of the project can be obtained from the various agencies of the U.S. Department of Agriculture. Further, while there may be considerable potential for installation of hydroelectric generation equipment on the Republican Diversion, that installation would require a complete rebuilding of the structure and would involve the use of extremely low-head hydraulic turbines, a practice considered to be more questionable technically than would be a high-head installation such as would occur at Painted Rocks Dam. The flow of the Bitterroot River at the Republican Diversion averages about 800,000 acre-feet per year, but the available head is marginal, approximately 10 to 15 feet. Because of the currently pending litigation on the water contracts on the Daly Ditches Project, its history of financial loss, and the need for virtually a completely new structure at the potential site for hydroelectric conversion, the Department believes it to be unlikely that the hydroelectric generation option can be exercised within any reasonable time.

After considering the possibilities for reversing the financial position of the Daly Ditches Project, the Department concludes that it is in the best long-term interest of the State of Montana and of the water users of the Daly Ditches Project for the state to divest itself of the project. This is the only way to relieve the state of the responsibility of the actual operation of the project and put it in the care of those who directly benefit from it. Because of the importance of the project to the agricultural economy of the area, it would be a necessary stipulation of any contract of divestiture that the project must continue to be operated as a water project and maintained in an acceptable state. In the event that the new operators failed to continue that operation for any reason, all real property of the project would revert back to the Department of Natural Resources and Conservation.

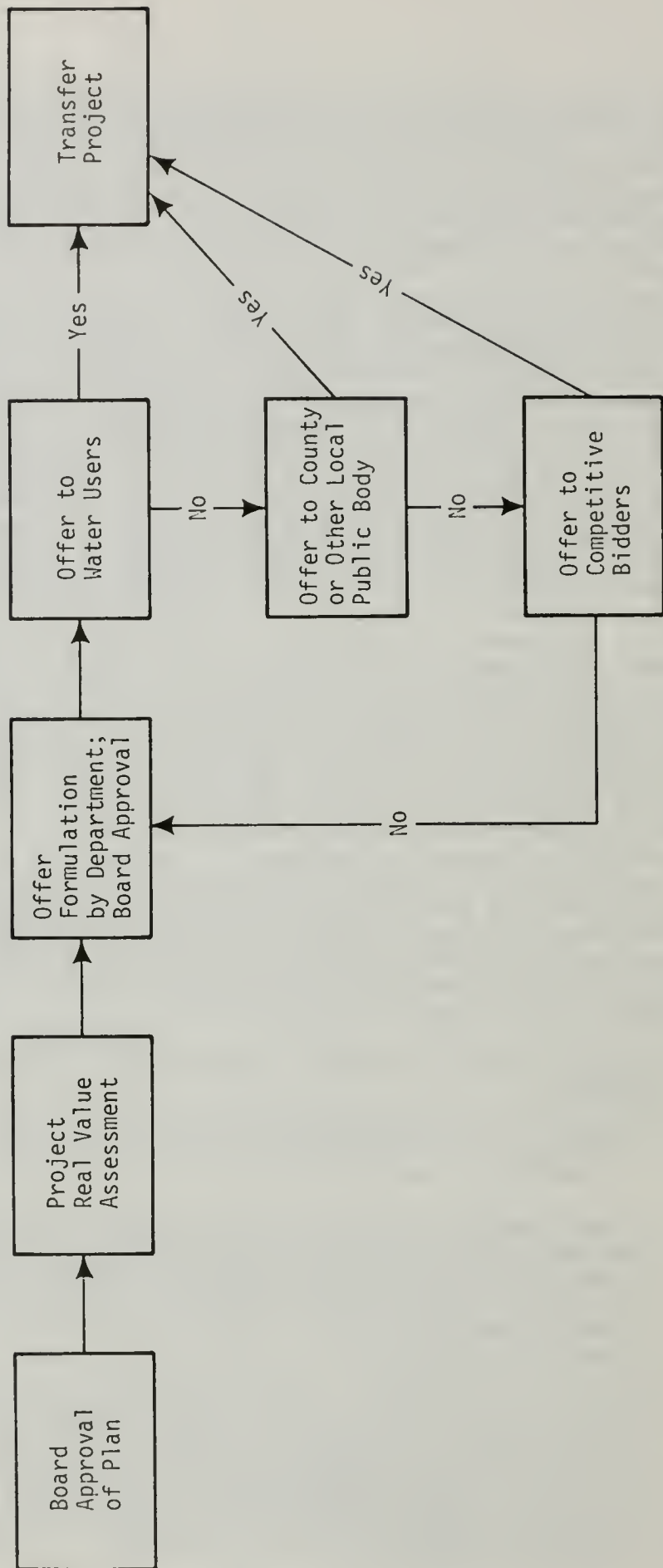
The Department's plans for divestiture are schematically shown in figure 6. This plan calls for a comprehensive assessment of the property and equipment belonging to the project and a further evaluation of the financial situation shown in table 3. On the basis of these assessments, the Department would then formulate a proposed offer which would be submitted to the Board for approval. Following that approval, the Department would offer transfer of ownership of the project first to the water users, then (in the event of refusal) to the Ravalli County Commissioners or other appropriate public body such as an irrigation district, and finally to private competitive bidders. Logically, the water users should obtain the first opportunity to assume ownership management of the project. If they decline, then it would seem reasonable to extend the same offer to the Ravalli County Commissioners or other local public body on the basis that the project is of great significance to the area, economically and historically. The quantity of mechanized equipment which accompanies the project could be a further inducement for the county to assume ownership and management, since this equipment would be generally useful year round for county-operated public works. If all local public bodies decline to accept the offer, the Department recommends that the same offer be put out for competitive bids in anticipation that local businesses, contractors, or responsible individuals in the Bitterroot Valley would be interested in assuming ownership and management. Private individuals or firms would be expected to have more flexibility and entrepreneurship than state or local government and might find non-water-related applications of the property to provide supplemental, stabilizing income. Again, the equipment inventory and the project headquarters facility and land located at the Ravalli County Airport could prove to be a significant attraction.

In the event that there are no acceptable bidders, the Department would repeat step 3 shown on figure 6, re-evaluation and reformulation of an offer and subsequent resubmittal of the revised offer to each of the previously mentioned parties. The Department recommends that this process be continued until an acceptable contract for transfer can be negotiated with a responsible party.

Terms which would be expected to be a part of the transfer offer would include:

1. A five-year moratorium before initiation of debt repayment.
2. The transfer of all real estate, deeds, easements, water rights, water contracts, equipment, materials, and buildings which have been historically associated with the Daly Ditches Project, such transfer to be made by means of a Quit Claim Deed and other appropriate legal instruments.
3. Continued Department prosecution (on behalf of the new owners) of the currently pending lawsuit related to the existing water sales contracts. This is important because resolution of the contract dispute in favor of the Department and new owner would greatly hasten the return of the project to sound financial condition.

Fig. 6. Plan for State Divestiture of Daily Ditches Project





4. Safeguards to ensure that the new owner would continue to operate the entire project and maintain the facilities and associated equipment in a satisfactory manner. Provisions would be included to ensure reversion of all real property back to the Department in the event that this condition is not met, for the reason that the Department regards the Daly Ditches Project as being of great importance to the economy of the Bitterroot Valley, and the continued operation of the project is viewed as essential.
5. Consideration of the Department leaving its current resident manager at the project for one year as a state employee in order to assist the new owner/operator in a smooth management transition.
6. Department assistance in a continued effort to reorganize the project and to further investigate the potential for the installation of hydroelectric power capacity on the project. With the project under new ownership and direction and associated increased repayment capacity, it is more likely that federal agencies involved with these two activities (irrigation and hydroelectric generation) would be inclined to participate financially in this program of rejuvenation.



APPENDIX

EXCERPT FROM STATE WATER CONSERVATION BOARD:

SUMMARY OF ACTIVITIES FROM INCEPTION

JANUARY 22, 1934 TO JUNE 30, 1960,

BY ROBERT J. KELLY (HELENA, 1961), PAGES 1-13



June 30, 1960

## STATE WATER CONSERVATION BOARD

### History

The precarious position of agriculture and the livestock industry in Montana during the early 1930's which was aggravated by severe drought caused extensive individual and group effort in seeking ways to put Montana's water resources to use. The first evidence that there was positive thinking toward the creation of a state agency for this purpose was the appointment of a Mississippi Valley Water Conservation Commission which was authorized by a law passed by the 1931 Legislature. This commission was instructed to study, in cooperation with other states, the development of the entire Mississippi Valley, and more particularly projects within the State of Montana. It was provided with only a \$2000 appropriation for the biennium.

In 1933 the nation was in a critical depression and the federal government, to alleviate unemployment, established work programs designed to encourage the construction of public works. Such programs as public works construction had never before been considered as a remedy for the nations economic ills, but the severe depression with such widespread unemployment demanded drastic measures. The state, as well as the nation, was not prepared to meet the emergency that existed, and more particularly they were not ready with programs of public works projects. The result was that any type of endeavor that would immediately permit people to be placed on public agency payrolls was undertaken. It was recognized that a great deal of these so called "pump priming" projects were of limited value and served only to avoid gifts or doles to the unemployed as payments in this form were deemed objectionable by our citizens. To guide these public expenditures into projects more permanent in nature and to help stabilize our agriculture and livestock economy which was in a severely depressed condition not only from low prices but because of a continuing drought, a great demand existed in Montana for the broadening of these public works programs to include the construction of water conservation projects. Governor Cooney proposed to President Roosevelt that Montana be allowed to proceed with such a program under loan and grant offers being made by the Federal Public Works Administration. He was assured by the President that if Montana would enact the necessary legislation in such form that the government could buy the bonds of the state agency that the Public Works Administration would finance a state water conservation program to the extent of five million dollars.

Almost immediately work began on the preparation of legislation to create the State Water Conservation Board, In addition to Montana people, the firm of Masslich and Mitchell, bond attorneys in New York, contributed to writing the act. This firm was subsequently employed to furnish the legal opinions on the bonds issued by the Board, which were required by the federal government. Governor Cooney late in 1933 called a special session of the state legislature with one of its prime purposes the enactment of this legislation. The State Water Conservation Board was created under House Bill No. 39 which was approved by the Governor on January 9,

1934. The 1935 legislature amended the act to include the establishment of the "Conservation Revolving Fund", and also broadened the Board's powers. The act has been interpreted twice by the Montana Supreme Court and its provisions held constitutional. The first case State ex rel Normile vs. Cooney, et al., considered the act itself as well as the issuance of water conservation revenue bonds and methods of repayment, etc. In the City of Conrad case further interpretation of the Board's powers was given.

The first Board as constituted by law consisted of Governor Frank H. Cooney, Chairman and Mr. J. S. James, State Engineer, and three members appointed by the Governor. Mr. D. P. Fabrick, Mr. R.R. Purcell and Mr. I. D. O'Donnell. The Board held its first meeting on January 22, 1934.

Following is a list of the members of the Board with their terms of service:

Governors ex-officio Chairmen

Frank H. Cooney	January 1934 to December 1935
Elmer Holt	December 1935 to January 1937
Roy Ayers	January 1937 to January 1941
S. C. Ford	January 1941 to January 1949
John W. Bonner	January 1949 to January 1953
J. Hugo Aronson	January 1953 to (incumbent)

State Engineers ex-officio Board Members

J. S. James	January 1934 to November 1938
E. B. Donohue	November 1938 to June 1941
Fred E. Buck	July 1941 to (incumbent)

Appointed Board Members

D. P. Fabrick	January 1934-January 1949 and January 1953 to (incumbent)
R. R. Purcell	January 1934 to October 1936
I. D. O'Donnell	January 1934 to April 1937
Grover C. Lewis	October 1936 to April 1937
Rockwood Brown	April 1937 to January 1941
O. S. Warden	April 1937 to March 1951
C. H. Raymond	January 1941 to (incumbent)
John David	January 1949 to January 1953
Max Mathews	May 1951 to February 1957
Henry J. Sawtell	February 1957 to (incumbent)

The following is a list of the terms of those members acting as Vice-Chairman and Secretary of the Board

R. R. Purcell	January 1934 to October 1936
J. S. James	October 1936 to October 1937
Rockwood Brown	October 1937 to January 1941
O. S. Warden	January 1941 to March 1951
C. H. Raymond	April 1951 to (incumbent)

The following have acted as Chief Engineer for the Board

J. S. James	January 1934 to October 1937
E. B. Donohue	October 1937 to June 1941
Fred E. Buck	July 1941 to December 1949
R. H. Fifield	December 1949 to July 1956
George F. Sahinen	August 1956 (incumbent)

## THE STATE WATER CONSERVATION BOARD ACT

The Act creating the Board declared as its purpose to encourage public works and to reduce unemployment and thereby assist in the national recovery and promote the public welfare. It also declared that the public interest, welfare, convenience and necessity required the construction of a system of works for the conservation, development, storage, distribution and utilization of water. It declared that the Board was performing a governmental function in carrying out the provisions of the act and that water conservation was a state purpose. It specified the Board was a body corporate and politic with perpetual existence and was an agency of the State of Montana. Broad powers were given to the Board allowing it to cooperate and enter into agreements with all federal and state agencies; investigate, survey, construct, operate and maintain, and to finance the construction of projects either through funds appropriated to it, by grants or by the sale of water conservation revenue bonds. It established the various funds that were necessary in the servicing of the bond issues as well as the funds required to carry on the business of the Board.

The Board was given authority to file on all unappropriated waters of the state and the right of eminent domain to acquire lands needed for projects. Several clauses of the act broaden the powers of the Board to include all types of development of natural resources.

## BOARD POLICY AND ACTION

The Board has now been in existence twenty-six and one-half years.

Many of the actions and policies of the Board were the result of necessity rather than judgment. On its creation it had a mandate from the legislature to proceed with a construction program of water conservation projects to alleviate existing depressed economic conditions. Prompt action was demanded. This required the Board to immediately assemble and train engineers and other personnel for a program of dam and canal building, a field in which there were very few men with experience.

The drought had made many localities in the state conscious of the need for irrigation and each of these areas believing their proposed project to be the most meritorious brought continued pressures on the Board. In all sixty-seven applications were filed with the Public Works Administration. The Board was confronted with deadline dates set by the federal agency for filing applications and with the lack of experienced engineers it was only humanly possible to present applications for funds for projects based on incomplete information.

Immediately on applications being filed local groups would bring pressure on Montana's congressional delegation to have funds allocated by the federal agency for their project. The Board did not have a choice of projects to be constructed. After filing applications the Board would select projects it felt were most likely to receive construction funds and would undertake further engineering studies on them. However, many projects which the Board was not prepared to construct received allocation of funds because of their location in areas of heavy unemployment or other local conditions. The Board had no notice of allocations for projects until they were announced in Washington. The members of the Congressional delegation would then wire the local people under the projects allocated that funds were available for their project. This, of course, left the Board no alternative but to make every effort to construct the project.

Subsequently, when the Board would receive formal notice of the allocation of funds for a project in the form of a loan and grant offer, the terms of the offer would impose difficult and sometimes impossible conditions. A date for starting construction and meeting the terms of the offer was set by the government, which conditions if not met resulted in the offer being rescinded. These facts are recited to show why many agreements and contracts of the Board were entered into under duress because it was a matter of meeting the conditions imposed or losing the construction funds. The time allowed to get projects under construction was not sufficient to allow the federal agency's employees to make more than a cursory examination of the Board's ability to meet the requirements of the Loan and Grant offer before construction contracts were awarded. This resulted in much controversy, with the government withholding construction funds at times from the Board causing it to delay payments to the contractors and for other items, all of which contributed to additional costs of the projects. The government representatives argued that these extra costs were compensated for by grants it was making to the projects.

One of the most troublesome requirements the federal agency made was that projects should furnish only supplemental water as no new land could be put under irrigation because of the claim that over-production then existed. Because the projects were to furnish only supplemental water it was presumed that distribution facilities existed under them. In signing up water purchase contracts it developed that in many projects sufficient distribution facilities did not exist and the Board was required to accept promises from local people that new canals would be built or others enlarged. Many of these promises proved to be beyond the financial capability of local people to fulfill.

In determining the feasibility of a project the Board's general policy has been to consider first, engineering feasibility; that is, a certain amount of water can be made available for a certain cost; second, that there is land available on which this water can be used to produce net wealth in excess of the charges necessary to meet construction repayment and operation and maintenance costs; third, that there are water users available to make profitable use of the water. The Board has recognized that irrigation projects



should not be built to meet only the immediate demand for their use, but should be constructed to serve the ultimate demands of the area. The full utilization of the Board's projects has been retarded some from acreage restrictions on farm production, also from ability to produce crops due to more adequate rainfall since the drought was broken, and to a great extent by improved stream flow over the years since the projects were built.

The program differs from those early private irrigation developments which in order to finance their construction carved out partial areas of the states benches and valleys to suit individual holdings. The state's program should and does make water supplies available on projects it constructs limited only by availability of water and physical characteristics. This development of facilities over and above the immediate need for them causes a required longer repayment period for the return of funds invested in the projects. Basing and expecting repayment of construction funds in a limited time is required when private financing is involved, thus - in that type of development only facilities could be afforded for those areas ready for irrigation. The state program has a much greater aim, it recognizes that many of its projects will be serviceable for several hundreds of years and will continue through their life to stabilize the economy of the areas served as well as to contribute indirectly to the economy of the entire state through increased tax base, income and higher production.

This program represents the states investment in the development of its water resources, and it preserves for Montana a prior right to use water for its projects as against claims which might subsequently be made for water used by downstream states.

#### CONSTRUCTION PROGRAM

The projects constructed by the Board divide themselves into three groups, not because of physical characteristics, but on the basis of the source of funds secured for their construction. The Board's early construction program was carried on principally through the sale of bonds to and from grants received from the Public Works Administration. The first application to that agency for funds was filed for the Rock Creek project in Carbon County on May 10, 1934. Subsequently applications for funds for forty-seven projects were filed in 1935. In addition three applications were filed in 1936, two in 1937 and fourteen in 1938, making a total of sixty-seven applications filed with the Public Works Administration. Of these applications eighteen projects received loans and grants and were constructed. Other projects constructed through the sale of bonds included the Deadman's Basin Project, which bonds were sold to the Reconstruction Finance Corporation. The following project bonds for the construction of Domestic Water Supply Systems were later sold to local people: Highwood Water System, Community Gravity System of Noxon, Charlo Water System and Brady Water System.

The second group of projects identified in this report as "State Projects" consist of those principally financed through state appropriations, which has been the only source of Board funds since government agencies from which the Board could secure construction funds were discontinued by Congress.

The third group of projects were small projects built under government make work programs in which the Board assumed ownership of the project and acted as sponsor in providing limited funds.

In all 181 projects were constructed as shown in detail in Exhibit "A". 141 dams and reservoirs were built to store 438,017 acre feet. Some of these storage projects also have diversion structures and canals and including these, forty-five projects with 815.8 miles of canals permitting the use of 250,563 acre feet of direct stream flow were built. The projects were built to furnish a water supply for 405,582 acres of land. Also 23.6 miles of pipe line for domestic water supply projects and 24.36 miles of transmission lines for pumping projects were constructed.

## FINANCING

The original plan, as conceived by the Board for financing the construction of projects, was to sell water from its projects as required by water users just as any other commodity is sold. This would permit the Board to adjust its charges on projects to fit costs and allow it to make changes as economic conditions required. This plan had to be modified to meet requirements made by the Public Works Administration before that agency would purchase any of the Board's bond issues. The government first required that the Board attach the water to the land, thus substantially creating irrigation districts. The Board insisted that it would not adopt any plan wherein its bonds were secured by lands of the water users because that type of financing had not been successful in Montana, and it had seen the hardship imposed on many farmers through the resultant credit restrictions and the unfairness of joint liability provisions. A compromise was reached whereby the government accepted individual water purchase contracts specific in terms of years and amounts of payments.

In dealing with the federal agency the Board was confronted with many demands that were met grudgingly. History had proved irrigation financing to be very hazardous, and the applications for funds for projects were being handled in Washington by people not acquainted with irrigation. Water was a menace to them, not something you could offer as security. All projects had different characteristics, so no set rules or documents could be adopted. Nearly every project was handled in Washington by different engineers and attorneys so the Board was constantly resisting modifications or assenting to requirements for changes in both financing and project design. In the desire to get work under way the Board would be ordered to get projects under construction in a very limited time and then because of technicalities construction funds would not be made available to the Board. Selection of the projects to be constructed was generally made by the federal agency so as to locate them in areas of greatest unemployment. The Board did not have an opportunity to select the order in which construction should be undertaken. Time and man power did not permit the Board to fully investigate these projects so the allocation of funds were necessarily made on incomplete and some times sketchy information on a project. This, of course, made necessary changes in projects even after construction began, which created many problems in working with a federal agency that had rigid regulations.

Other western states at that time passed similar water conservation legislation but only Montana was successful in getting government financing for a construction program. Credit for this accomplishment must go to the willingness of the Governors and the Board members to compromise and meet the requirements of the federal agencies in order that construction might proceed. It also required the support and understanding of the legislatures that have supplied the states part of the funds needed.

The Board also cooperated with other federal agencies which were created by Congress to relieve unemployment. Under these work programs Congress required that a public agency sponsor projects and contribute part of the funds with the government paying for labor and some material and other costs. In order that this labor might be employed on more useful projects the Board sponsored many water conservation projects with the Civil Works Agency, which was succeeded by the Works Progress Administration. An overall agreement was reached in 1935 with the Works Progress Administration wherein that agency allocated two million dollars to a water conservation program in Eastern Montana providing the Board would provide sponsorship funds in the amount of One Hundred Thousand Dollars. Most of the small project program of the Board under which 128 projects were built is the result of this agreement. The major consideration in building these projects was to furnish employment for people on relief rather than water conservation. Many of these projects proved not to be serviceable, but this was the result more of the changed precipitation pattern which alleviated the drought conditions rather than from physical failures which in many instances resulted from lack of maintenance by water users who could be benefitted by the projects. The Board also received cooperation from the Civilian Conservation Corps in building two of its projects.

To keep the program uniform the Board has used substantially the same type of organization and water purchase contracts on all of its projects, including those built entirely with state funds. With the exception of those years during World War II, the legislature has provided funds so that the Board might continue with its construction program.

#### OTHER ACTIVITIES

In its study of water conservation possibilities in the state, the Board, in addition to the projects constructed, has made surveys of 182 projects and a very limited investigation of 132 others. Many of these projects should eventually be constructed and the information the Board has gathered on them will be very valuable for any future construction program. The Board cooperated with the Montana Power Company and the Bureau of Reclamation in a survey of the Upper Missouri Basin which resulted in the construction of the Canyon Ferry Project; also with the Bureau of Reclamation on the Upper Flathead River, which culminated in the construction of Hungry Horse Dam. Cooperation was also given in securing construction by the Bureau of Reclamation of the Marias, Helena Valley, East Bench and Yellowtail Projects. To increase its effectiveness in securing

construction of these projects the Board has maintained representation in Washington, D. C., so that continued personal contact would be made with congressional committees and departments. The Board maintains representation at all meetings of the Missouri Basin and Columbia Basin Inter-Agency Committees and such other meetings of organizations that deal with water resources.

The 1935 legislature created the State Electrification Authority and named the State Water Conservation Board as the authority. The act re-enacted all of the powers given to the Board under its law, such as constructing projects, issuing bonds, etc. The purpose was to permit the Board to construct all types of electrification projects more particularly Rural Electrification projects. The national Rural Electrification Administration, after consideration of the law, determined that it could better conform with its activities if it made loans directly to cooperatives rather than a state agency, but requested the Board to create an engineering force to provide that service to the cooperatives. The State Electrification Authority Act was repealed by the 1953 legislature in that the Board had never used the terms of the act, the engineering services being rendered to cooperatives under the provisions of the water conservation board act. In the Rural Electrification construction program carried on the Board has furnished engineering services to 23 cooperatives at a cost of \$1,079,815.08. Repayments by cooperatives and current accounts amount to \$1,123,183.53, leaving \$43,368.45 to apply on an amount of \$144,533.02 which the Board has spent on general engineering and other costs attributable to the program. The Board has accumulated considerable information which is valuable for the continuance of future construction of projects. There is being presently maintained a small engineering force commensurate with the demands of the cooperatives.

The State Planning Board was created by the 1935 legislature. Under the act the Board is composed of the five members of the State Water Conservation Board. Its purposes are to develop plans and policies for the conservation of land, water, mineral, timber, coal, oil and other natural resources. It was provided with an appropriation during the years 1935 to 1941, and appropriations were again made for the years 1955 to the present time. Currently the Board is engaged in an active program of encouraging the location of industry in Montana.

#### COST OF PROGRAM

Projects of the Board have been financed from various sources. Eighteen issues of bonds totaling \$4,123,000.00 were sold to the Public Works Administration. One bond issue for \$135,000.00 was sold to the Reconstruction Finance Corporation, and four issues for \$98,500.00 were sold to local individuals. Cash grants, based on 30% on Rock Creek Project and 45% of the total cost on others, were made by the Public Works Administration in the amount of \$3,330,994.90; two projects received cash grants in the amount of \$178,632.78 from Federal Flood Disaster Funds, and three projects were financed in part by local sources in the amount of \$59,849.65. Labor, material and other grants in the amount of \$3,454,710.90 were

substantially all received from federal agencies principally the Works Progress Administration. To justify the grant base for some of its projects the Board made a 3% administration charge on its larger projects and 5% on the smaller ones - this resulted in a charge to the projects of \$178,640.41. Board funds in the amount of \$10,311,883.65 were spent on the program. This amount includes \$375,529.85 spent on surveys and investigations and \$1,079,815.03 spent on rural electrification projects.

The total cost of the program as shown in detail in Exhibit B as of June 30, 1960 is:

Bonds Sold	\$ 4,356,500.00
Cash Grants	3,569,477.33
Other Grants	3,454,710.90
Board Funds	10,311,883.65
Administration Charge	<u>178,640.41</u>
Total Cost of Program	\$21,871,212.29

#### BOND ISSUES

Of the twenty-three separate bond issues of the Board only one Series "X", Charlo Water System has bonds outstanding that are held outside of the Board. This issue still has \$7,000.00 in bonds outstanding which should be retired within three years. The following eight bond issues are fully retired: Series "B", Conrad; Series "F", Park Branch; Series "G", Livingston Ditch; Series "K", Big Dry; Series "O", Highwood; Series "P", Columbus; Series "U", Community Gravity and Series "1", Brady. Exhibit "C" shows the total bonds issued, \$4,356,500.00, have earned interest in the amount of \$3,545,609.13. There has been \$725,500.00 applied on bonds and interest payments have been made in the amount of \$2,490,275.69 leaving a balance due on the bonds and interest of \$4,686,333.49.

Exhibit "D" shows the source of funds used to apply on payment of bonds and interest. Payments on water purchase contracts have provided \$2,998,462.11, accrued interest at the sale of bonds amounted to \$74,816.67 and construction funds applied for interest during construction were \$198,777.20 making a total funds available \$3,272,055.98. Also shown on Exhibit "D" is the accounting for these funds. In addition to \$725,500.00 applied on bond retirement and interest payments of \$2,490,275.69 payments amounting to \$25,274.73 were made to Montana banks for fees in handling the Trusts set up on the issuance of bonds. There is as of June 30, 1960, cash in these Trustee banks amounting to \$25,914.29 available for application on the bond issues. There is also available \$2,236.63 with the State Treasurer for Series "X" issue and \$2,854.64 in funds not needed for bond retirement for Series "G" and "P" Bond issues, which has been deposited in Bond Fund 198, making a total available for application on the Bond issues of \$31,005.56.

When Congress discontinued the Public Works Administration seventeen of the Board's bond issues owned by that agency were transferred to the Reconstruction Finance Corporation, also a federal agency, who already owned Series "W" bonds issued to

construct the Deadman's Basin Project. Subsequently the RFC sold Series "B" bonds, City of Conrad, to private investors. That agency assigned an engineer to supervise its investment in the remaining seventeen projects, many of which were in default, and it was in this period that the Board encountered tremendous difficulty in trying to put its projects on a sound financial basis. The government insisted that all of the terms of the contracts, trust indentures, etc., be rigidly adhered to and would not permit adjustments even where gross injustices were apparent. Many of the problems that existed on the projects were the result of the economic condition of the water users and to a great extent the fact that soon after the construction of the projects the drought cycle reversed itself and with precipitation more plentiful the water from the projects was not being fully utilized. Studies by the Board showed the need for a fresh start on many of the projects which involved an adjustment of the water purchase contracts to fit conditions as they existed. Many conferences were held with Reconstruction Finance Corporation officials and efforts to make progress in adjusting financial conditions of the projects on a realistic basis were fruitless.

In 1950 Congress ordered the Reconstruction Finance Corporation to liquidate its holdings. The seventeen bond issues of the Board were offered for sale to the public. The Board was approached by bond houses who made offers to refinance these bond issues that involved guarantee by the state itself of certain payments provided the issues could be acquired from Reconstruction Finance Corporation at an adjusted price. None of the proposals showed promise of bettering the projects financial position to the point the Board believed necessary. The Board then ordered a study of the value of the repayment available from existing water purchase contracts on the projects to arrive at a figure it could offer the Reconstruction Finance Corporation for the bonds. Based on the possibility of securing funds from the legislature to purchase the bonds, a negotiated price of \$1,534,882.33 with Reconstruction Finance Corporation was agreed upon. Involved was \$3,926,835.02 in bonds with \$973,403.08 in accrued interest on them.

The 1951 legislative assembly appropriated to the Board \$1,450,000.00 which, with the funds in the Trustee Banks, was sufficient to purchase the bonds. The purchase was made on July 11, 1951 and Exhibit "E" shows the operation of these bond issues up to June 30, 1960. Section 89-116.1 requires that the Board deposit all revenues from these seventeen projects in the Water Conservation Bond Fund, which fund reverts to the state general fund on June 30 each year. As of June 30, 1960, there has been reverted to the general fund the full \$1,450,000.00 appropriation and there remains in the Trustee banks \$25,914.29 for further reversion to the fund. The value of the water purchase contracts outstanding when the bonds were purchased was \$2,536,564.80. New contracts were sold amounting to \$1,376,912.33. Payments received on contracts was \$1,539,110.33, leaving the remaining value of the contracts \$2,374,366.80. There is also a large remaining potential sale of water from the projects.

## FINANCIAL REPORT

The following is a statement showing the source of state funds and other receipts and their disposition covering the twenty-six and one-half year period from inception January 1934 to June 30, 1960:

### Appropriations:

To Revolving Fund	\$ 3,712,999.67
To Revolving Fund from Post War Fund	650,000.00
To Betterments and Repairs	234,589.49
To Betterments, Repairs and New Projects	4,549,978.70
To Bond Purchase Account	1,446,831.69
To Administration Fund	1,763,887.57
To Planning Board	181,124.07
To Water Resources Survey	41,999.99
To Washington Representative	17,500.00
To Retirement System	86,260.18
To Social Security	<u>12,500.00</u>
 Total Appropriations	 \$12,697,671.36
From Miscellaneous Income	55,142.97
From Administration Charges	167,321.25
Total Available	<u>\$12,920,135.58</u>

### Disposition of Funds:

Returned to General Fund - Bond Purchase A/C	\$ 1,446,831.69
Project Accounts	7,592,547.52
Inventory	308,148.42

### Cash Balances:

Planning Board A/C	\$ 3,682.76	\$
Revolving Fund (Special A/C)	215,661.38	
Betterments, Repairs and New Projects A/C	120,149.54	
P.E.R.S. A/C	<u>1,082.31</u>	340,575.99
Project Accounts charged off		597,884.95
General Accounts charged off		2,612,416.90
Machinery and Appliances Charged Off		<u>21,730.11</u>
 Total		 \$12,920,135.58

Listed in income is \$55,142.97 as miscellaneous income. This is made up of \$32,101.51 in interest collected, \$11,319.16 in administration charges, fire insurance \$9,758.70 and \$1,963.60 miscellaneous income received.

Exhibit "F", which gives detail on expenditures for project accounts, shows the following:

Board Funds invested \$10,311,883.65 plus administration charges of \$178,640.41. There was repaid to the Board \$2,299,772.43 and administrative charges of \$11,319.16. Accounts in the amount of \$597,884.95 were charged off leaving balance due on active project accounts \$7,592,547.52. These charged off accounts consist principally of expenditures the Board has made in accumulating information on prospective projects through surveys and investigations and which projects are not now active.

Exhibit "G" gives a detailed breakdown of all expenditures made by the Board during its existence for administrative and other general accounts. The total of \$2,612,416.90 is made up of the following categories: Administration \$924,945.37; Engineering Office \$346,420.86; Engineering Field \$322,941.70; Operation and Maintenance \$231,117.14; Machine Shop \$60,872.62; Planning Board \$170,077.76 and others \$556,031.45.

The balance in all funds provided by the legislature for the Board revert at the end of each biennium except the special revolving fund which each legislature has permitted the Board to retain. This fund consists of repayments made to the Board and expenditures from it are made on projects.

#### THE FUTURE

Primarily the Board is a construction agency but with construction activities slowed by limited funds and high costs, the Board has had an opportunity to give more attention to the problems of management of its projects. There has never been technical help employed by the Board to promote the use of water on the projects, and only limited attention has been given to distribution problems. It has not been the desire of the Board to perpetuate its existence by building up a large management department, on the contrary it has placed the operation of its projects insofar as possible with the local water users through their associations.

Since the acquisition of the Bond issues and because it does not have any outstanding indebtedness, the Board does not have a compelling reason to force the utilization of water from its projects and is in a position to allow them to develop soundly. The great potential from remaining unsold water in the projects which belongs to the Board permits it to guide the use of this water in such a manner as will reflect the greatest benefit to the economy of the state.

To put a monetary value on the states remaining equity in the projects is difficult because it can be assumed that the water unsold in the projects will no doubt increase in value. The Board uses three types of units in securing repayment under its water purchase contracts. Water from storage projects is generally sold on an acre foot basis. Where a canal project uses the direct flow of a stream some projects are based on the use of miners inches of canal capacity. In some instances where storage water and direct flow are both made available the contracts are written on an acre basis. Exhibit "H" shows in detail that in addition to



154 contracts the Board services on domestic water supply systems that there is now due the Board \$5,072,898.07 on 2177 water purchase contracts representing the sale of 206,843 acre feet of storage water, 17,715 miners inches of canal capacity and a water supply for 29,209 acres of land. Exhibit "H" also shows the potential sale of water from the projects based on the repayment and term of years that was agreed upon when the projects were constructed, which reflected the amount of water that would be available from the facilities constructed. This exhibit shows in detail that there is a water supply still available for sale in the units under which the financing is based for 191,678 acre feet of storage water, 640 miners inches of canal capacity and 17,491 acres of land with a value of \$7,845,599.45. It may eventually be determined that some of the acreage under the projects will be used for other purposes than agriculture and in others lands might prove unsuitable to irrigate. It is also very probable that this water owned by the Board will increase in value as present charges for it are based largely on construction costs of the nineteen thirties.

In continuing the construction of projects the Board has faced a serious problem because rising construction costs have outdistanced the increase in farm income. The Board originally charged 4% interest on funds it furnished on projects but when grants from federal agencies were no longer available and as costs grew it abandoned this charge. Likewise it started financing projects on a thirty year repayment basis. To keep the annual charge within the water users ability to pay it has necessarily lengthened this repayment period. The Bureau of Reclamation and others engaged in irrigation financing are now using 80 to 100 year repayment periods. This offers the only practical way to keep the annual costs of repayment to the water user within an amount he can be reasonably expected to pay.

The Water Conservation Board has accepted the mandate of the legislature that it construct projects to develop natural resources to benefit the economy of the state. The program has proven a greater degree of financial success than like programs that were previously attempted. Although created to alleviate unemployment its continuing purpose has been to stabilize the agricultural and livestock economy of the state. It fulfills a need in constructing projects that because of size or other contingencies are not being constructed by federal agencies. It makes beneficial use of our water resources thereby preserving them and creating a vested right for future generations. The impact of the program is apparent by the increased revenues both to water users and in taxes to school districts, counties and the state, and indirectly to the business communities where projects are located and to the state as a whole.

The Board has a dual purpose for the future: first, the continuing development of our water resources, and secondly, the protection of the states investment in the projects now built so as to secure from them the greatest economic returns to the state, as well as the state funds now invested in them.





